CALL MSX

Special Bussum 2005



Guides of games

War of the Dead 2

Dragon Slayer 4

Starquake

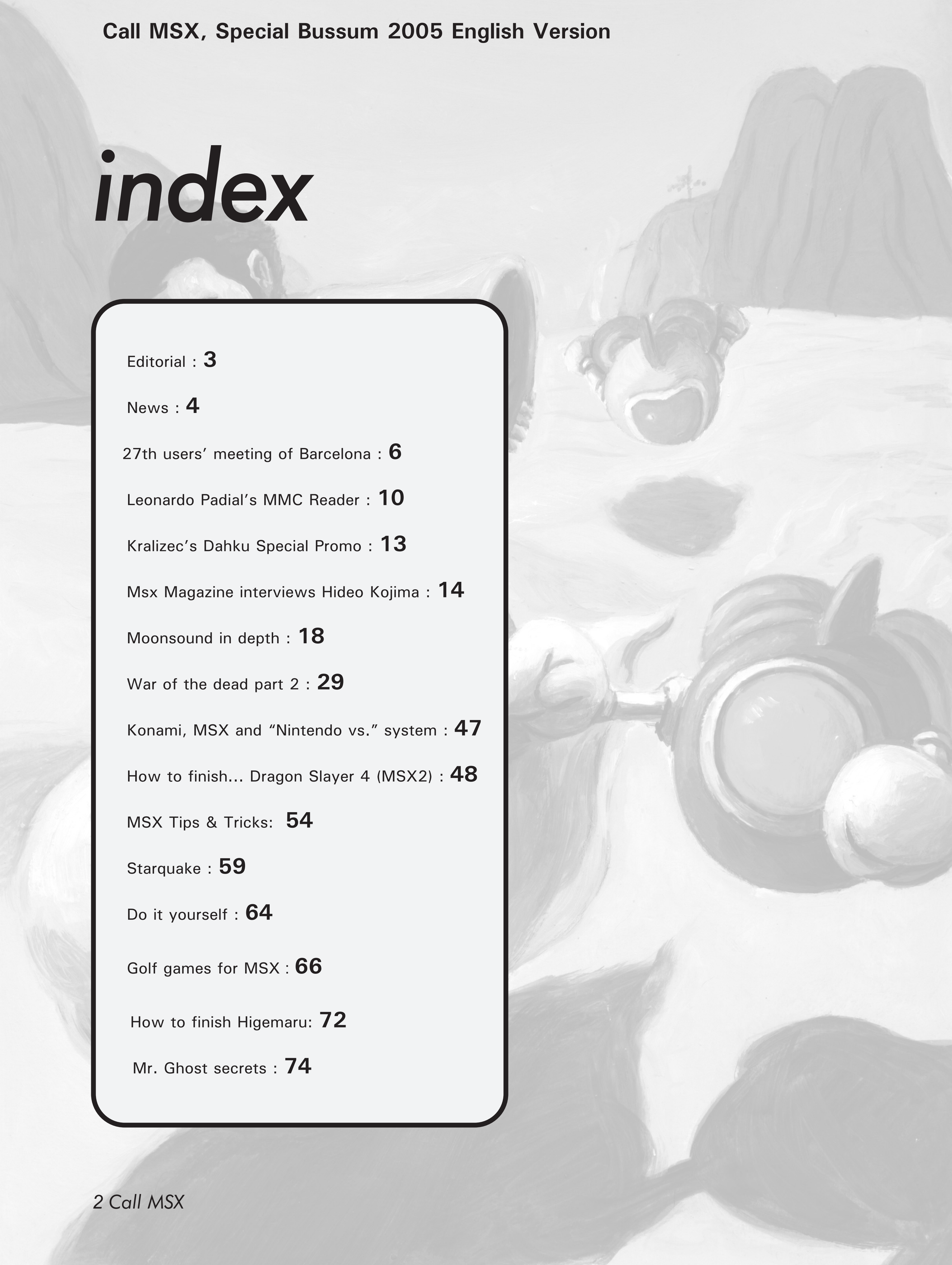
Article

Moonsound in depth

And many more inside ...

Padial´s new hardware!!

MMC Reader



Call MSX, Special Bussum 2005 English Version

index

Redaction

Francisco Álvarez
Roberto Álvarez
Óscar Centelles
David Lucena

Illustrations

Roberto Álvarez

Modeling

Roberto Álvarez

Collaboration

Frederik Boelens
Miguel Ángel Fernández
Juan Luis Martínez
Kyoko Koizumi
Eduardo

English Translation

Francisco Álvarez
Roberto Álvarez
Miguel Ángel Fernández
Avelino Herrera
Diego Millán
Ramón Serna
Marc Vallribera

Contact

http://callmsx.gabiot.com

EDITORIAL

This magazine is edited regularly in Spain and written in Spanish. Two years have passed since the first issue was born and four numbers have been published coinciding with last Barcelona MSX meetings. We, the editors, have thought that because of the non temporary nature of certain contents we could build a collection of the best ones. So most of MSX users can enjoy these articles too. We have selected the articles from the first four numbers and we have translated them into English. This special number should be available for Dutch users during the next Bussum fair.

Our last number, published last May, showed that we were expecting about upcoming news of MSX One Chip. It brought internal debates during summer where some people were agree and others were against the creation of the new board. Actually we do know that we were not enough clients to reach the required amount. So ASCII won't continue with its manufacture. Hopefully it seems like a B plan could be a reality. Let's see if it really carries out the expectation from both the users and the manufacturers. This fact will determine the publication of our magazine because many of the contents of the fifth issue of the Spanish edition have no sense anymore because of the cancellation of the project.

This number is not only the translation of old published articles since we added new ones that we hope that you will like too. Many users, even foreign people, helped us to create the previous Spanish call MSX numbers. They have sent us articles related to Dutch meetings or to the Argentinian MSX current affairs. We won't close any doors so we will be always ready to receive contributions in the future. Without them it would be almost impossible to publish more numbers. So we encourage all the users to collaborate with us writing aricles, sending cheats, game betas or opinions or just asking to be interviewed to make known their club or programs.

To conclude we will ask for apologies if our English level is not good enough, but we did our best. Of course, it will reveal that English is not our native language.

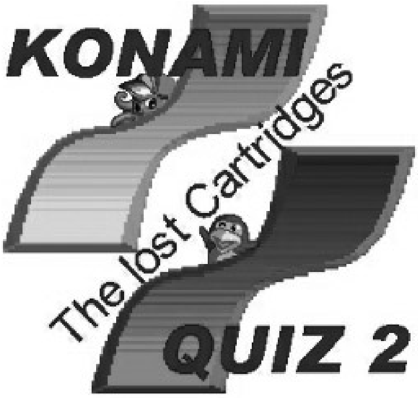
Call MSX team.

News

Konami Quizz 2 by Delta Soft won't be ready for the next Bussum fair according to thir members.

So it will be for sale at the Nijmegen meeting next year.

This will be, as his own name says, a Quizz game. It will include, as the famous Konami games, music composed for the SCC by Frederik Boelens.



Snatcher 2, Space Manbow 2, Knightmare Gold...

Amateur sequels to some of the best MSX games are starting to appear.

Maybe they are just still concepts or graphics, but some people behind them makes us believe.

While Knighmare Gold is a MSX2 version of the original MSX1 with most part of the game reprogrammed, SDS2 and SM2 seem to be promising sequels.

Will they be good enough to be named in that way? Won't that be a burden for them if the results are not at least close to the originals?

These ones are nice initiatives for the system so let's hope that everything goes on and we can enjoy if they get finished.

MSX ONE Chip being a reality?

Upcoming news from Bazix state that MSX One Chip project is not still dead and it could find a new manufacturer through a second pre-order period

According to Bazix, the MSX Association is still thinking that a "commercial" version of MSX One Chip can be a dream come true.

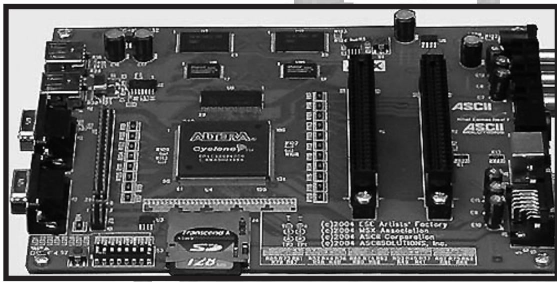
After the disappointment because ASCII is no longer interested into MSX One Chip manufacturing it seems like other companies could be behind these great news.

Some changes on the design will come if it is finally decided to make the production:

- MSX2 configuration by default
- 2 MSX cartridge slots
- Extra Flash ROM (MSX2 config.)

It seems like some of the requests that some European people did have been took by the MSX Association even if some people still complain about it.

Even if it comes with real improvements it seems that the price won't be higher which is really interesting from the users view.



Let's hope that this time it will be a reality and we will have new hardware coming from Japan since Tsujikawa's work really worths it.

More information and picture taken from **www.bazix.nl**

Perfect Covers 3



Jordi Tor is back! Yes, the AAM President is back to business again, so it means that a new one of his famous musical compilations on CD is finished.

This disc continues with the same approach that the previous ones. It is originally based on MIDI tunes found on internet and later adapted with samplers and virtual instruments to get the maximum quality.

Perfect Covers 3 includes some medleys of classic songs from Vampire Killer, Nemesis, Salamander, Knightmare and Maze of Galious. It also includes some themes with symphonic style as the Rastan Saga theme or songs from the church in YS or the first song in Altered Beast.

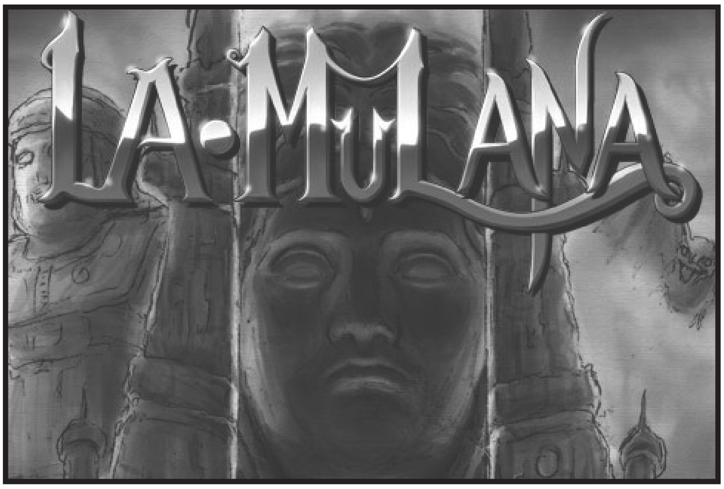
Just for a change of the actual trend in musical compilations, Jordi has tried to avoid the abuse of typical themes to rescue less famous ones. So, games as RType, Pitfall 2, Out Run, North Star or Bubble Bobble are present in this musical CD.

This CD will be sold during the next Barcelona MSX Meeting or you can order it from Jordi Tor's mail address: **jordi@papipapito.com**

PC game with MSX1 style!!!

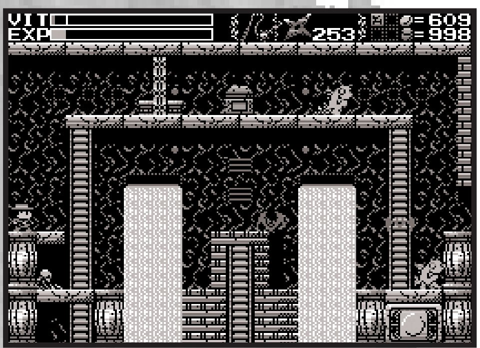
GR3 Project has done it again. After their succesful GR3 -gradius saga- now they come to show us La Mulana, a game for PC inspired in King's Valley, Treasure of USAS or Maze of Galious.

Even the manual which can be downloaded from Naramura's website could be a Konami one from their classic 80s MSX games.



G3Project became famous between the MSX community because of their Gradius version for PC. Everything made you think that you were playing to another sequel of the Gradius saga in your MSX1. The gfx were really great as they were in the original shooters by Konami.

Now they brings us a new "sequel". This time it seems inspired on a travel to Egypt. Every time you look at the gfx you get the feeling of the true Konami gold years: their last MSX1 games (Kings Valley 2, Maze of Galious, etc) and their impressive MSX2 new games like Treasure of Usas.



It is a true delight to watch it again and again, so they better don't stop making new games. The only bad side is that they are made for PC. But could not they be created on MSX hardware? They really worth it and sure most of users would be even happier if they could play them using a real MSX.

La Mulana and GR3 can be downloaded from this website:
http://naramura.kdn.ne.jp/msx3/g3project/

MSXDev'05

With 23 confirmed projects until today, MSXDev is confirming as a real institution for the MSX1 games creation.

If someone told us in 2002 that we were going to have new ROM games for MSX1 it is sure that nobody would believe him. But it is true and we must blame Eduardo Robsy Petrus because of it. Every year the number of projects and participants is being increased so it shows that users have not forgot their MSX1.

Something is changing this year... where are the Dutch coders? That question can be erased finally so we will get new MSX1 productions from the country of the tulips and windmills (and do not forget the wooden shoes!).

Let's hope that games this year will be even better thanks to the relaxed rules this time. Games like Battle Tetris are hard to beat!

If you need more information about MSXDev'05 you can visit Robsy's Workshop: **www.robsy.net**

UMAX is back

Who has not played hours and more hours to Pumpkin Adventure 3 or The Witch's Revenge? Who has not bought Lost World or Realms of Adventure yet? If your answers are negative to both questions... Be ashamed!

Finally they are back in town. With almost the classical line up (Vincent van der Vliet replaced Stefan Boer after 1998) UMAX is ready to come back to life one of the most famous "unfinished" MSX games: Realms of Adventure.

It was hard to hear that Peter was no longer involved in next parts of the game so it seemed like a died project. But right now it is a reality again, so let's encourage them to finish the next parts.

And yes, MSX lacks RPG games for many years now since RoA or Moonlight Saga. It was not nice to see that Final Quest was stopped too. But now the moment has arrived!

To check news about UMAX check their website:
http://members.chello.nl/b.keijner1/umax/

27th Users' Meeting of Barcelona

14 years of meetings in Barcelona and here we are again. This time the meeting was held in a different room near the classic one. Smaller but also cosier, the perfect size for all the visitors who came this time.

Of course the amount of visitors decreased compared to last years but it is also true that it comes happening again and again.

The main reason this time resides in the short period since the real date of the meeting was officially decided, almost two weeks before. So people living outside Barcelona could not organize their travels or they had other engagements.

But yes, most of Barcelona visitors come from this city or its outskirts. But many of them did not come this time either. Why? Maybe they are tired of always finding the same there or theyhave other priorities now.

Well, at least the meetings "MSX only" in Spain are kept alive even if we don't know what will happen in the future. People get older and have more responsabilities... so let's wait for the next one to see if it still deserves to continue visiting them.



Room's panoramic

This time the meeting was held in a hall of an annexed building in "Cotxeres de Sants" with a pretty small size but good enough considering the number of visitors. First impression was a complete decadence (compared to the old meetings, I remember that mythical one with the Japanese stand and how it is nowadays!), but later on, after meeting some guys the atmosphere became kind of intimate so you could talk to



Karoshi's stand

other people about any project for the system in a relaxed way.


Paxanga stand

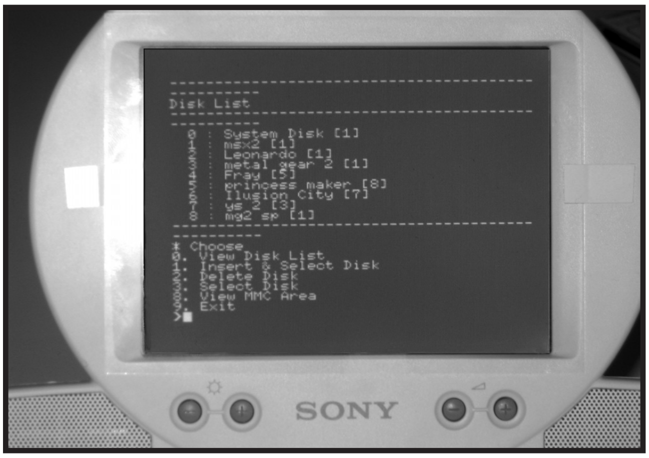
First stand was Karoshi's. There you could see two screens showing self made games available to play. One of those was Duck Hunt prepared to work with two GunSticks. The other one was a Columns port for MSX1. A Karoshi's brochure informing about their news was also available to get for free, and somewhere on the stand one of their members was working in some group's project.

Next to it Msxkun was in charge of Paxanga's booth in which the classic Yupipati game was released with double player capacities. One of the pads used was a Play Station's connected to the MSX through one of the adapters developed by Calamar. However, the most interesting but initially not so surprising was the MMC reader developed by Leonardo Padial and showed by Eduardo. Well, they showed only one and it was sold at the very beginning of the meeting, but Eduardo had another MMC reader but this time it was a hand-made


Shakes T-1000!!

version. It incorporated SCC (a more than two months "Chinese's work"). He was explaining its behavior while his Turbo R was connected to a PsOne by means of a cable going through the Memory Card slot. It was incredible to see a MSX in such an small screen... and so sharply!!

Close to them our stand was situated presenting, of course, the Call MSX paper magazine. The fourth issue was released but old exemplars of the third number were available as well.



Options menu of MMC Reader in PSOne screen

Furthermore, a MSX Turbo R was used to show some classic Graphics 9000 demos (I encourage people to get one of them since it is completely amazing!) so then some people were able to watch it working for the first time.



Call MSX stand

Next one was the 2nd hand booth with Jordi Tor as stand-holder. As always a table with plenty of software, lots of old



President of AAMSX in second hand stand

Konami's ROMs, most of them with original boxes, some mythical game in its luxurious box, like YS 2 or Xak. Some old exemplars of the Moai-tech magazine could also be bought.



Taburoto making a scene

But being just a few doesn't mean that we didn't make any noise! Taburoto was there to ensure loud music with its powerful sound equipment which forced some poeple to ask for some aspirins at the chemist's shop. They also showed a new stereo CD with equalized musics from Illusion City and Princess Maker at the price of 2 Euro. Old CDs were also available: "Metal Gear" and a "Special Daviz compilation", for instance, were found on their stand.

After them Moai-Tech was presenting their new webzine on their stand. For that reason they put a laptop where people were able to visit it and read the articles in situ. They also had a simple calendar for free and surprised everybody with a



Moai-Tech stand with his products

paper poll whose results will be showed on their next issue. Moreover, they had t-shirts for sale with images of their first issue webzine as well as a 2 Euro musical CD called "MSX Musical Moments" with the best piano and orchestra themes from MSX games.



Famous tournament of the reunion

Later on the meeting crew prepared a computer equipped with 2 pads where konami's F1 Spirit was loaded so the classic competition on every meeting could start. And who got the prize this time? Nobody else could be but the great Imanok. This guy wins everything!

Well, a different meeting where, in spite of the above, some people did a great effort to assist, at least for a while, and that is something to be grateful!




MSX
Bombjack







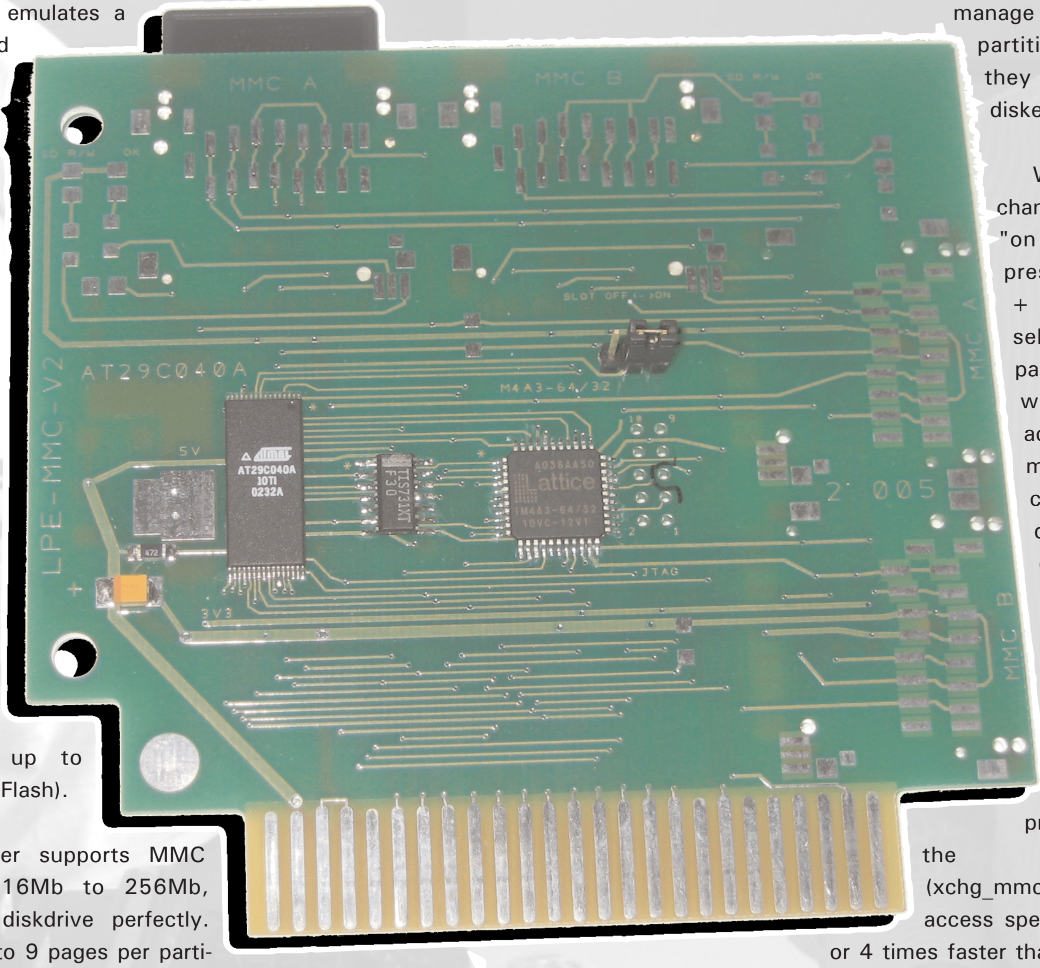


Leonardo Padial's

MMC Reader

Firstly, it must be said that the MMC reader original design and its software is provided by Yeongman Seo (aka sharksym).

This card emulates a disk drive and can work in any MSX1, MSX2, MSX2+ or MSX TurboR. It also includes a 512Kb Flash memory where the MMC control software resides. This Flash memory can be used as a FlashROM cart (using the application ATLOAD to load ROMs up to 512KB in the Flash).



This reader supports MMC cards from 16Mb to 256Mb, emulating a diskdrive perfectly. Partitions up to 9 pages per partition and sizes of 360KB, 720KB, 1.44MB, 2.88MB, 5.76MB, 11.5MB and 23.0MB can be stablished.

We could design many partitions through the built-in software (diskman) as the ones of the next examples:

1 partition of 5 pages with 23Mb each. We could copy many files as we can do with an IDE interface.

1 partition of 9 pages with 720Kb each. We could copy a game with 9 diskettes in each page of the partition using the program "copia720" or even do a diskcopy over each page of the partition. In my opinion it is an important advantage compared to the IDE interface since this last one can't manage 360/720Kb partitions as if they were diskettes.

We can change the page "on the fly" pressing "yes" + Return and selecting the page which we want to access. So it means that changing a disk is an easy task.

We can change the MMC card "on the fly" without any problem using the application (xchg_mmc). The data access speed is over 3 or 4 times faster than a conventional disk drive.

There is a limitation which is being corrected. It lies in the fact that the MMC initialization and partitions creation can be only done using a turboR. It does not only work using expanded slots.

A more detailed description by Yongman:

MMC Interface Cartridge with DISK ROM.
By Yeongman Seo (E-mail:sharksym@hitel.net)

This is the MMC interface cartridge.
It is used as external FDD.

The ROM file consists of:
- patched DISKROM(16KB)
- Flash/MMC routines(16KB),
- DISK-Image(480KB).
Total 512KB in size.

Minimum required system...
-MSX1 with 64KB RAM, no FDD. (but, Not tested...)
-1 Primary slot. (Not work at Expanded slot)

Recommended system...
-MSX2 or above with DOS2, 1 FDD
-1 Primary slot. (Not work at Expanded slot)

With the MMC cartridge inserted in the MSX you have:

With MMC,
- Drive A mapped to MMC Disk.
- Drive B mapped to Flash-ROM Disk. (Read only, but very fast)

Without MMC,
- Drive A mapped to Flash-ROM Disk. (Read only, but very fast)
- Drive B is disabled.

The Flash-ROM Disk contains the DOS2 system files(v2.31), Flash downloader, MMC disk manager and MMC system installer.

INSTALL.BAT : MMC System Installer.

How to install..

- Insert MMC interface cartridge on MSX without MMC.
- Now, you can boot drive A (on Flash-ROM Disk).
- Insert MMC into the cartridge.
- Run INSATLL.BAT.
- It will making System Disk (Disk No.0)

<u>ATLOAD.COM : Flash-ROM downloader. (Ver 1.05)</u>

- Atmel AT29C040A (4MBits) only.
- You cannot run ATLOAD.COM on MMC Drive itself. It must run on FDD.
- See SCC FlashROM part on circuit.

<u>DISKMAN.COM : MMC Disk Manager. (Ver 1.40)</u>

- Insert/Delete Disk. Support 7 different disk type (360KB,720KB,1.44MB,2.88MB,5.76MB,11.5MB,23.0MB) You cannot enter disk name including space. (' ')
- Select Disk It will mount selected disk to Drive A: This information is written on System disk. DISKROM read it at next boot.
- Multiple disk(max.9) can be allocated. When Disk-ROM access MMC, it check "RUN" key. ("RUN" key is between 'SPACE' and 'KANA' key) If Disk-ROM checked 'RUN' key down, CAPS LED lights dimly. Now you can select another Disk #1～#9 by pressing 1～9 key of numeric keypad. (0:System Disk Only, 1～9:For Multiple Disk)
- Disk No.0 cannot be deleted. Because, all disk information is saved at Disk No.0 (DISKMAN.DAT)

<u>XCHG_MMC.COM : MMC Disk Exchanger. (Ver 1.00)</u>

- Use this when you exchange another MMC. It can be used after booting without MMC. (eg: installing MMC system.)

<u>INIT_MMC.COM : MMC Disk Initializer. (Ver 1.00)</u>

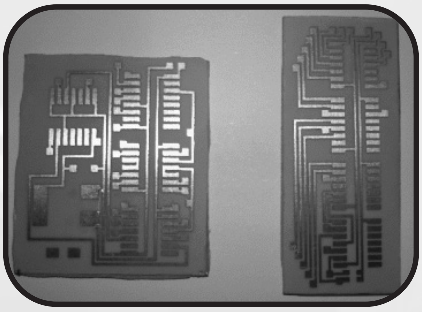
- It should run at Installing MMC system. It enables System disk can be formatted.

Note...

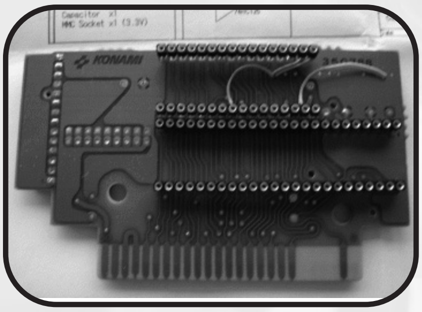
- MMC Interface Cartridge can be used at primary slot(1,2) It will not work at expanded slot.
- Installer disk(Flash-ROM) is DOS2 format. Installer for DOS1 will release some time, if anyone have a request :)
- Currently FAT16 is not supported.- Disk ROM doesn't check write protected.
- MMC Drive is three times faster than real FDD.
- Some games will not run, becuase of doubled work area,that is needed by 2 diskroms. Many games required boot by pressing CTRL key.
- Tested at My MSX only. MSXturboR A1GT (RAM 1024KB) MSX2＋ A1WSX (RAM 512KB, DOS2 v2.20)

If you have any question, send me E-mail, please.

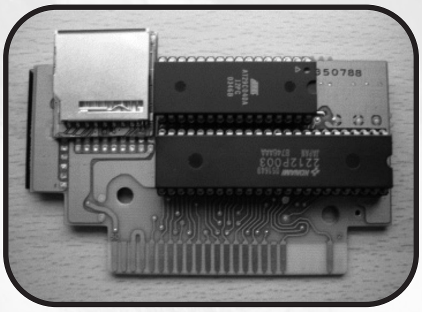
Yeongman Seo (E-mail:sharksym@hitel.net)



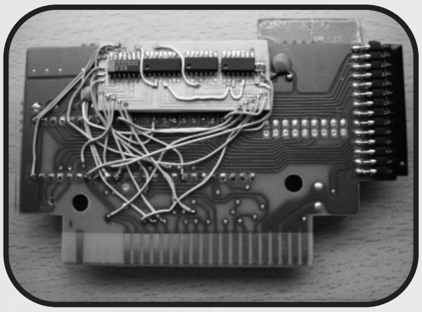
A.



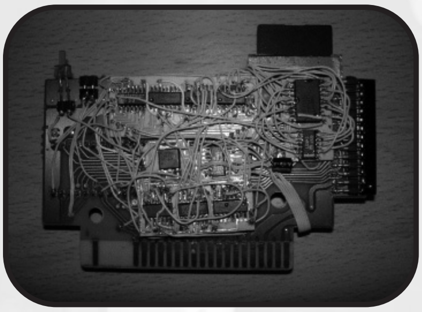
B.



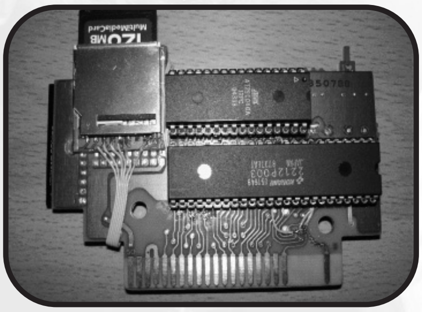
C.



D.



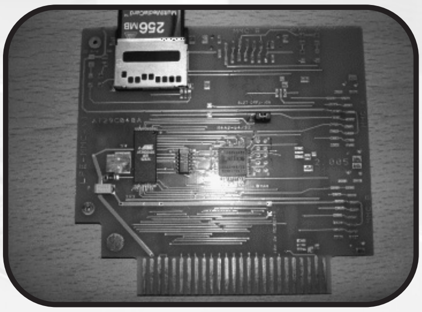
E.



F.



MMC with SCC in a konami cart



Ready for sale



MMC Reader working in Turbo-R

Leonardo Padial has developed a dual MMC model (see added picture). Yeongman Seo is developing a new control software for this card. As it is shown in the picture, the card has two MMC reader sockets in the upper part or in the right side. Leonardo has replaced the SCC with an implementation of its mapper in a CPLD. The rest of the card control logic is also implemented in this CPLD.

Talking about my MMC readers, I would like to say that the process to adapt the SCC cart is really laborious and complex (IF YOU WANT TO EXHAUST YOUR PATIENCE), as it is shown in pictures.

I recommend 100% the Leonardo Padial card since it works perfect and there is no need to modify the SCC cart nor soldering wires there as I've made.

Adaptation process from a cart SCC to a MMC reader:

a) Firstly I designed some boards (to integrate the control logic with SMD chips) using acid.

b) Desoldering the SCC chip and the ROM of the cart and replacing them with sockets. The DAC and the two capacitors must be placed on the back of the board. The signals must be wired if the ROM of the cart has 128Kb then it can handle a 512Kb flash.

c) In the upper left place there is space to put the MMC reader as it is shown in the picture.

d) Soldering the SMD chips in their related places of the developed boards to create the control logic and wire the related signals to this.

e) This task is TERRIBLE and COMPLEX because there are lots of signals to wire and it is really easy to make a mistake with the related risks to the MSX. IF SOMEONE STILL WANTS TO DO IT MUST DO IT UNDER HIS OWN RESPONSIBILITY.

f) Once the design is finished the file MMC_DISK.ROM must be stored in the cart flash using the application ATLOAD.COM. Can be loaded from the computer disk drive.

g) Now when the computer boots the software in the flash (read-only) is loaded to manage the MMC cards.

h) We will execute the application "install" which will guide us to initialice the card.

i) We can create the partitions using "discman". With "format" they will be ready to use. With "discman" we will select the booting partition. And now the card is ready to be enjoyed with MSX.

Eduardo (usuario_msx2)

KRALIZEC'S

DAHKU SPECIAL PROMO

Remember the great game Bomb Jack? Well, the creators of that game are back with a new release!

Soon they will spoil us with their game Dahku. A platform/action game for the MSX2.

I've been given a promo of the game. It consists of a graphical manual and the game itself with 3 playable levels

The Dahku promo starts with a titlescreen on which you can read a scroll with some explanations and you can see the high score. This all together is accompanied by nice PSG music. Before you can play you first need to choose whom you want to play with. You can choose between three characters which happen to be the creators of the game (Chus, Rman and Sut). The characters also stand for the diffeculty level: Easy, Standard and Hard.



Dahku's main title



Dahku's stage



Dahku's characters selection screen

After this we can start playing! The final game will have 5 towers, each tower consisting out of 5 floors.

Floors 1 to 4 are filled with enemies and blocks. Behind the blocks you can find items, spells and keys.

The player can walk around, jump on platforms and is equipped with a magic fire which can be used for freezing enemies.

You can't leave a floor until you've found all keys. But, you can't just collect the keys. You need to break the blocks first.

This can be achieved by pushing the frozen enemies towards the blocks. This way they break down and you can pick up the keys, items or spells behind them. Spells and Items will help you defeating enemies and retreiving the keys. Once you've collected all keys you have to walk to the exit door, which can be quite diffecult, because you don't have magic fire at that time. According to the manual you have to defeat a 'wizz-examiner' at the fifth floor

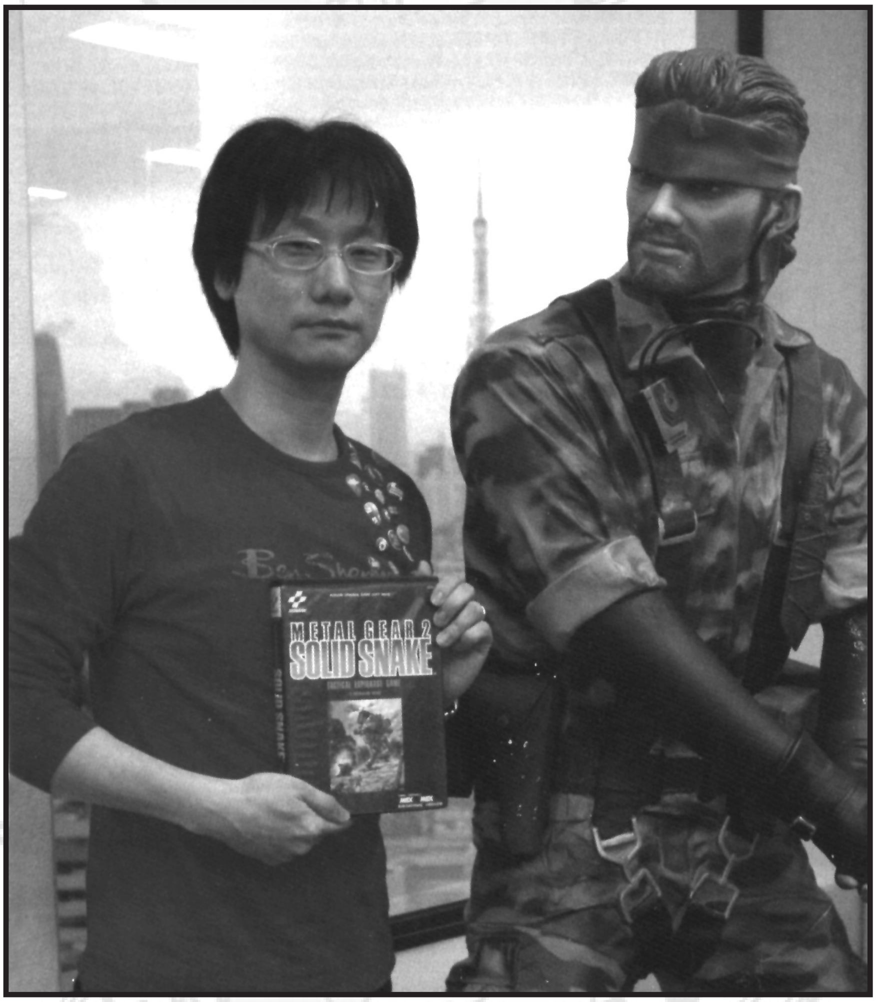
This Dahku promo has great gameplay, gfx and music. The game is quite addicting and it all looks very complete. The quality is very high, and it reminds me of Konami games like usas and kings valley 2. Let's hope Kralizec will release this game soon!

Frederik Boelens

MSX Magazine interviews

HIDEO KOJIMA

MSX is Konami and Konami is MSX. For MSX users, Konami is a very important brand. And finally, our dream is fulfilled and we have managed to interview to a very important people for MSX Magazine. Dr. Kojima was waiting for us inside "Roppongi green hiruzu". Well, let's start the first scene.



HIDEO KOJIMA WORKS IN KONAMI

In 1986 Hideo joined Konami as "planner". His début was spectacular: Metal Gear (MSX2) in 1987. After this title he produced Snatcher, Policenauts, etc., and became famous because of his original and high quality games. In 1998 he published Metal Gear Solid. The amount of 7.5 million copies was sold all over the world. In 2001 Metal Gear 2: Songs of Liberty was published. It was the Metal Gear Solid continuation. With this game Kojima became one of the men who "open a path to the future". His new product is Metal Gear Solid 3: Snake Eater (2004).

[At first he did not like MSX]

We took a present to Mr. Kojima (MSX Game Reader).

Great! Great! This is very very good. (He opens the box) Is it for sale?

It is lamentably sold out, but of course we give it to you as a present.

Could two Game Reader be used at the same time?

Yes, it is possible. If you buy one more.

Wow! Is it possible??? (Looking at our magazine) MSX... I miss it.

We were worried too because we did not know if the first MSX Magazine would be sold, but we have had a big success, beyond our forecasts. We have discovered that there are more MSX fans around the world that we expected.

Many developers say that their first computer was MSX. There is a person in Konami who joined Konami because of Metal Gear.

At first when I joined that company, I did not like MSX (laughs).

Really? Now you say that, I remember that there were too much people who wished a Nintendo but their parents bought them MSX.
But, even in this case, they only played... or just used Basic. Nowadays,

even if they like to play, the don't code. It is too much difficult. But then, there were people who wanted to program.

Why didn't you like the MSX at the beginning?

When I was an university student I liked playing too much. When I had free time I was always going to the arcades and I thought to join a videogames company, so I was not thinking about MSX at all. After joining Konami, I only thought in Nintendo and arcades and thought many games, but they told me that I had to stay at the MSX department. When some sprites were placed in the same line they disappeared and they had just one color. It was hard to code.

The game design was also done by yourself?

It was in that way back then. There was a games design deparment which was the same one for all the different machines. After concluding the meeting where we decided how the games should be made I had to go to the design department. There, sometimes, I was surrounded by people who work with Arcade or Nintendo.

Was not it a sad situation?

Well... MSX could not beat Arcade or Nintendo talking about graphics and sound. So we had to think in story and game design. We had a "planner" (map designer) in the MSX department because we had to think too much in the project and maps. I've said "planner" but this person had to make the design too. I started as a "planner" and I learnt from a job friend who worked really well. So I achieved to make a very rare game: Metal Gear.

[He produced Metal Gear almost reaching the limit]

How did you happen to create Metal Gear?

I could not say it back then, but now I can.

The game "Senjyou no ookami" (Capcom) was in fashion back then. They asked me to produce a similar game for MSX1. At that time the games had a 6-ways movement, hadn't they? We could not use more than 4-ways movement with MSX1. Then we tried to use the 4-ways movement, but even in this case, it was really hard to do. So we decided to create a game with few enemies. That is the Metal Gear history.

So MSX reached its limits to produce Metal Gear, didn't it? I noticed when I played it... I could not shoot too much.

It had no scroll because of it. As MSX had five function keys, we wanted to use all of them. That is the reason because the fourth one is the Radio. It was unthinkable to press two keys at the same time with a joystick.



I remember that Metal Gear was not a great success at the beginning, but it became famous thanks to be the talk of the town. People did not understand how to play it but the more they played the more they enjoyed. It is like a squid: "The more you bite it, the better it tastes".

The company was not attaching too much importance to MSX games because they were selling many games for Nintendo and Arcade. MSX was famous too, but compared to Nintendo and Arcades its market was small; that is the main reason because we did what we wanted. At that time we had a list of the most sold games of each machine in the living room. First fourth ones were always Konami games so we were proud of it... but our incomings were low.

We will interview to Mr. Uehara too. Did you work together in Metal Gear?

No, we did not work together. But we did in Solid Snake. I enjoyed too much then. When I was working in Metal Gear I suffered too much. Solid Snake was published in 1990 but the game was finished in 1989. As I was helping with SD Snatcher we published it later. At the end it was the last game for MSX.

After that you moved to PS world with Metal Gear Solid.

When I heard that we were able to play to 3D polygonal games at home, the first I thought was: real hiding. Until that time we could only see it from from above. But now it was possible to hide under a table or inside a closet. So we started to think that producing Metal Gear Solid could be a reality. But not many things change in the game, like "see behind the box".

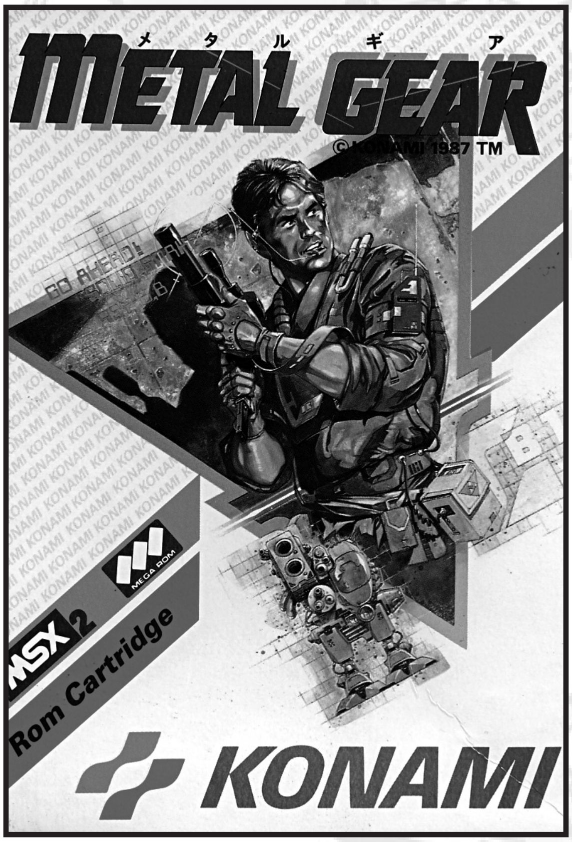
It was a huge success, wasn't it?

The MSX version was the funniest one.

[Gold Konami. MSX titles]

Snatcher is also a very good game.

After finishing Metal Gear, I had a better reputation inside Konami, but the incomings were still low (laughs). Then I asked for holidays during a week to think in a new project. While I was travelling to Awaji with a friend by car I had an idea. At that moment I wanted to do an adventures game as a killers serie that I liked too much when I was a student. If I create an adventures game I can decide many things by myself. I did not like to create arcade games because the programmer decided things.



Original Snatcher was for PC-88.

When we thought to create Snatcher, Enix produced "Shiizas". It was a good game, wasn't it? I thought that it had to be for 88. The company asked me to do it for MSX2 too and I was very happy because of that.

Was it the first success of 88 for Konami?

Well, it was hard because there were not good tools nor sell path. That is the reason because it was delayed for 1 year and a half. Because of that we could not create the continuation. So we made this game for MSX.

Was it SD Snatcher?

Yes.

At that time I thought... why SD?

Well, I thought that too. Why do we create SD? We needed to do a continuation to know the story ending. That is the reason. Incredible...

I played Space Manbow too.

At the beginning it was named as "Alfaado" or something like that. It seemed that it was going to have a nice selling. The story was not very interesting but the program was very good. Then Nagata said with a loud voice: "We are going to name it Space Manbow". "Manbow" was cool then. So while everybody thought... "WHAT???" it was already decided.

I heard that all the main characters were changed in one month. Is it true?

We were copying "Thunder Cross", but its producer realized of that. At that time we worked with Uehara until late. As Uehara was living near home we used to come back together by car while we were listening to the Metal Gear songs he made. We were always together, even when we were eating. At midnight we went to the sushi restaurant and we got drink and fight. Next day we woke up very early to go to work.

Were living together all the department members?

Yes. The Kobe building had a bath and gym. We were there 24 hours. Even if we had holidays, we had no friends. Because of that we were always together and travelling together. It was a rare group.

[Why are the Konami MSX games funny?]

I think that Konami examines the game very well to decide its title.

As we had a "planner" we created games in other way. In the MSX department we had to do everything by ourselves including box, sentences that appeared in the box, design and manuals. But these are good memories.

The "planner" system was the key.

The companies (as Konami) which created arcades before producing MSX games, created games that finished with one coin. So they were very simple games. This system was held in konami when I joined. So they were angry when I told them "Give me a day to create the game world".

The companies which made computer games as Square or Enix knew about games world. So good "planners" appeared as Horii. They had a very different development base. But thanks to MSX users I could create Metal Gear and become what I am now.

Graphics were very nice too.

At that time the company had tools to make graphics. Nintendo and arcades had it too. When other companies still used the mouse, we used the pen (stylus pen). It was not that we were good draughstmen. But we had nice tools to get a nice drawing even if we did not know that much. As the technique to compress was high the graphic seemed nice.

How could you still create good quality games?

At that time our department was well appreciated. There was three groups and each of them had a "planner". Every group appreciated the others. If a created game was boring, everybody worked to correct it. The time to

accomplish it was one month and during that time we stayed at the company.

You sold very much producing in that way.

Snatcher (PCEngine version). It was not so sold compared to Nintendo sellings and that made that my appreciation inside the company were not so high. But the users supported me and that encouraged me.



Every game was made in that way. Space Manbow and Hinotori too. Even if we modified Usas a lot, it was not very funny. I also modified SD Snatcher completely. At that time we tried to achieve the perfection, so we were not selling bad games (MSX users were supporting us).

Nowadays, it is not strange to buy games being depended on who was the creator. But at that time it was rare, we only bought games made by Dr. Kojima.

When I created Metal Gear, Nintendo was selling a lot. Another company wanted to contract me to do games for Nintendo. At that time we could not add our names to the games. So I decided to continue inside Konami making MSX games because they accepted to add my name in the games final scroll as "H. Kojima". They did not accept this in other games (Nintendo, etc). So my name only appeared in MSX games.

Since then we could also choose the games if we liked the creator.

In the opinion poll cards we wrote "What do you think about Kojima?". But as they only knew the pronunciation they did mistakes with the Kanji. Finally my name written in Kanji together with my face appeared in the game

But we considerated that you were a great person.

Konami made a MSX game every three months as Nintendo did. So the max time to finish it was half year. But the time to create a game for me was one year and a half. It was not normal. So, nobody appreciated me.

We were happy too knowing that our opinion arrived to you.

The opinion poll cards were always over the table of the rest room. And I read them several times. I also received cards and chocolate (in St Valentine's day). People sending me chocolate is decreasing now though.

[KONAMIMAN: Japanese custom for St Valentine's Day to give chocolate to the man that a woman loves]

MSX users as me and Nintendo users argued at school. When we talked about Nemesis we told them that Nintendo version has no a long laser as the one in MSX version. We were really proud of that.

Yes, it is a surprise. MSX was more expensive than Nintendo even if the hardware was worse. We had to create some stuff to satisfy the MSX users who were really demanding.

Dr. Kojima has arrived so high thanks to the experience that he has got with MSX.

It's true. At that time I hated MSX a bit.



Did it take too long?

People from the commercial department took care of me though. Since the day that Metal Gear was sold lots of faxes arrived and they gave them all. The company did not appreciate my work but the users and people from the sales department cheered me up.

But now I realized that it was a really good experience. As the MSX department had not an easy environment I got a lot of experience.

We have a great pleasure with Dr. Kojima's new games. Big thanks.

Spanish Translation: **Kyoko Koizumi**

MOONSOUND in depth
(first part)

The MoonSound is the most powerful sound card for MSX. Its OPL4 chip is an hibryd FM + wave table synthesis engine with a 18 voice capable FM part and a 24 voice capable wave table part.



INTRODUCTION

The MoonSound card has an OPL4 (formally YMF278B), a ROM chip with a General MIDI 1 wave table (the enigmatic YRW801-M) and an additional SRAM chip with 128 Kbytes located, talking in terms of addressable space, beyond YRW801. In this SRAM chip we can store additional instruments and samples by loading them from main MSX RAM. The OPL4 chip has two separate parts: the FM part and the wave table part. The FM part is EXACTLY the same as in OPL3 chip (the well known YMF262) used in many PC sound cards (i.e. both the SoundBlaster Pro v2.0 and the SoundBlaster 16 have OPL3 chips; the SoundBlaster Pro v1.0 contains a pair of OPL2 chips).

I will use the C language for the source code examples because it is more understandable. I have tried to write the closest to ANSI standard, and with the port addressing I have used the "in(address)" and "out(address, data)" convention (like Hitech's one). If you use a different compiler you only need to use the adecuate port addressing extensions of yours. It is necessary that you have the OPL4 datasheet nearby, because I will ommit register listings or any other info that you can obtain easily from the datasheet. This article will only cover the MSX related issues and other topics that I think that are not properly covered in the Yamaha's datasheet.

PORT DETECTION AND MAPPING

The MoonSound port addresses are:

```
/* FM part */
#define  MS_FM_BASE    0xC4
#define  MS_FM_REG1    MS_FM_BASE
#define  MS_FM_DATA1   (MS_FM_BASE + 1)
#define  MS_FM_REG2    (MS_FM_BASE + 2)
#define  MS_FM_DATA2   (MS_FM_BASE + 3)
/* Wave table part */
#define  MS_WAVE_BASE  0x7F
#define  MS_WAVE_REG   MS_WAVE_BASE
#define  MS_WAVE_DATA  (MS_WAVE_BASE +  1)
/* Status byte (read only) */
#define  MS_STATUS     MS_FM_BASE
```

When a port address is not connected in MSX, we read a 0xFF from that address. An easy way to detect the MoonSound could be:

```
int ms_detect(void) {
        if (in(MS_STATUS) == 0xFF)
        return 0;
        return 1;
}
```

If a MoonSound is connected at any slot its status byte will be readable and the status byte of the MoonSound cannot be 0xFF. Port accesses in OPL4 must be done with a certain timming specifications, but we can use the 0 bit of the MS_STATUS byte. This bit is "1" when the OPL4 is busy and it is "0" when OPL4 is idle. Here comes an useful C macro:

```
#define MS_WAIT while (in(MS_STATUS) & 0x01) {}
```

By this way we can define the OPL4 register accesses like this:

```
    /* To write at first register bank of the FM part */
    void ms_fm1_write(unsigned char reg, unsigned char
data) {
            out(MS_FM_REG1, reg);
            MS_WAIT;
            out(MS_FM_DATA1, data);
            MS_WAIT;
            return;
    }

    /* To write at second register bank of the FM part */
    void ms_fm2_write(unsigned char reg, unsigned char
data) {
            out(MS_FM_REG2, reg);
            MS_WAIT;
            out(MS_FM_DATA2, data);
            MS_WAIT;
            return;
    }

    /* To write at wave table's register bank */
    void ms_wave_write(unsigned char reg, unsigned char
data) {
            out(MS_WAVE_REG, reg);
            MS_WAIT;
            out(MS_WAVE_DATA, data);
            MS_WAIT;
            return;
    }

    WAVE TABLE
```

Now we will treat the most attractive topic of the MoonSound, its wave table part. Just after a reset, the OPL4 runs like an OPL2 chip and it is mandatory to enable the extended FM part (OPL3 compatible) and to enable the wave table part (OPL4 speciffic).

```
        /* To enable the OPL3 compatible FM part and the
OPL4 wave table specifica part */
        ms_fm2_write(0x05, 0x03);
```

We can address up to 512 instruments in external memory (ROM + SRAM) splitted in two groups of 384 and 128 instruments respectively. Each instrument has, in the external memory, a header and the data. The header contains information about loops, envelopes, data format, etc; and the data contains the sound samples. The headers of the first 384 instruments are always located starting at address 0 of external memory; and the remaining 128 headers (from instrument 384 to instrument 511) can be located in other places of the addressable space. In the MoonSound we have the YRW801 chip which is a 2Mbytes (16Mbits) ROM at the beginning of the addressable space. This ROM contains the first 384 instruments (headers and data). The SRAM chip with 128Kbytes (1Mbit) is located at 0x200000 (just after the ROM in the addressable space of the OPL4). In this RAM chip we can upload the additional 128 instruments (from 384 to 511).

```
        /* We must say to OPL4 chip that we have
ROM+SRAM and that the second
                instruments group (from 384 to 511) is
located at SRAM (beginning
                at 0x200000 address) */
        ms_wave_write(0x02, 0x12);
```

Now we will prepare the MoonSound to play samples. Before playing a sound in any of the 24 wave table channels, we must indicate to the OPL4 which is the instrument we will play in that channel. We should use this routine:

```
        void ms_wave_select_wave(unsigned char channel,
unsigned int wave) {
                if (channel > 23)
                channel = 23;
                if (wave > 511)
                        wave = 511;
                ms_wave_write(0x20 + channel, wave >> 8);
                ms_wave_write(0x08 + channel, wave &
0x00FF);
                /* Wait until the OPL4 loads the instrument header:
1 bit of the MS_STATUS becomes "1" */
                while ((in(MS_STATUS) & 0x02) != 0)
                        ;
                return;
        }
```

Now, following the datasheet instructions, we can play an instrument in any channel:

```
void ms_wave_start_channel(unsigned char
channel, unsigned int fnumber,
                    char octave, unsigned char
volume, char pan) {
        /* bound channel */
        if (channel > 23)
                channel = 23;
        /* bound volume */
        if (volume > 127)
                volume = 127;
        /* bound octave */
        if (octave > 7)
                octave = 7;
        else if (octave < -7)
                octave = -7;
        /* bound pan */
        if (pan > 7)
                pan = 7;
        else if (pan < -8)
                pan = -8;
        /* write the correct registers */
        ms_wave_write(0x38 + channel,
((octave & 0x0F) << 4) |
                        ((fnumber >>
7) & 0x07));
        ms_wave_write(0x20 + channel,
(ms_wave_read(0x20 + channel) & 0x01) |
                        ((fnumber <<
1) & 0xFE));
        ms_wave_write(0x50 + channel,
(volume << 1) | 0x01);
        /* write the pan and fire the note */
        ms_wave_write(0x68 + channel, 0x80
| (pan & 0x0F));
        return;
}
```

The following function is to stop a channel:

```
void ms_wave_stop_channel(unsigned char channel) {
        if (channel > 23)
                channel = 23;
        ms_wave_write(0x68 + channel, 0x00);
        return;
}
```

Notice that stopping a channel does not imply that that channel will shut up, this depends on the "Release Rate" value for that instrument. See the OPL4's datasheet.

With an F-Number equal to 0 and the octave equal to 1 the selected sample plays at 44100 Hz. Until now all the features are completely documented, but, how to play, for example, an A-4 note of a piano or a C-min chord with oboes? If we do some tests with each of the 384 instruments of the ROM we can see that there are various samples for each instrument (the piano, for example, has 10 associated instruments in ROM, each one with a different pitch). This is what we call the "splitting".

Let's see some theory: If we sample a C-3 piano note at 44100 Hz of sampling rate, we could, in theory, obtain any note of the musical scale of a piano, playing that sample at different rates than 44100 Hz; therefore, we could obtain a C-2 note playing the sample at 22050 Hz and the C-4 note playing the sample at 88200 Hz. However this is not so simple. In the sounds produced by real instruments there are two main elements: the partials and the formants. The partials are the sinusoidal tones whose frequency is a multiple or submultiple of the fundamental frequency of each note. On the other hand, the formants are fixed frequencies that are attenuated, amplified or out of phased because of the physical characteristics of the instrument. The partials change linearly with the fundamental frecuency of the sound (its note) while the formants are constant or almost constant (the formants of a piano are determined by the shape of the piano itself, the formants of a clarinet are detemined by the tube diameter, the materials, etc). If we sample a C-3 note of a piano and then we play it at 22050 Hz we are shifting down both the partials and the formants and the resulting sound reminds vaguely the one of a piano but indeed, it seems more a broken bell :-)

But why so much theory with the partials and the formants? Well, because that is the reason why the OPL4 uses several sound samples throughout the scale; to obtain the closest to real sound. In other words: to play a note of an instrument with the OPL4 we must determine which subset of the 384 ROM instruments better corresponds to the real instrument we would like to reproduce. Then, based on the note we want to play, we must calculate which instrument of the subset we should play and its F-Number. Looks complicated? No, it's not :-)

INVESTIGATION

How can we know where to find the subsets of each real instrument? What are the instruments available in the YRW801 chip? The answers are not in the manufacturer. Diving, diving, I found a gold mine: The ALSA (Advanced Linux Sound Architecture) source code. The ALSA is a Linux project that aims to develop a robust and stable sound subsystem for the kernel. ALSA supports virtual signal routing, low latency and other advanced features. The Linux kernel version 2.6 and above uses this sound subsystem by default in the kernel. If we visit the official web page of the project "http://www.alsa-project.org" we can download the driver from any site of the listed ones. I downloaded it from "ftp://ftp.alsa-project.org/pub/driver/alsa-driver-1.0.9b.tar.bz2" that is the latest stable release at the moment of writing this article.

On Linux:
$ wget ftp://ftp.alsa-project.org/pub/driver/alsa-driver-tar.bz2
To obtain the ALSA source code (it is possible to use a browser, too :-))

$ tar xjvf alsa-driver-1.0.9b.tar.bz2
To uncompress in the "alsa-driver-1.0.9b" the sources

On MSWindows I think you can use the WinZip to extract the ALSA sources (I'm not sure, I don't use MSWindows :-))

Once we obtain the ALSA sources we should view the file "alsa-driver-1.0.9b/alsa-kernel/drivers/opl4/yrw801.c" and... Wow! we have the mapping of the standard MIDI instruments with the YRW801 ROM instruments, which is the chip the MoonSound uses to store its instruments! :-). If we look at the file "alsa-driver-1.0.9b/alsa-kernel/drivers/opl4/opl4_local.h" we will see the meaning of every struct field of each mapping. I have written a kind of summary of the "yrw801.c" file in order to facilitate the struct fields understanding. That file is located at my MSX web page "http://msx.gabiot.com/index_en.html". The data structures used are:

```
typedef struct opl4_sound {
        unsigned int tone;
        int pitch_offset;
        unsigned char key_scaling;
        char panpot;
        unsigned char vibrato;
        unsigned char tone_attenuate;
        unsigned char volume_factor;
        unsigned char reg_lfo_vibrato;
        unsigned char reg_attack_decay1;
        unsigned char reg_level_decay2;
        unsigned char reg_release_correction;
        unsigned char reg_tremolo;
} opl4_sound_t;

typedef struct opl4_region {
        unsigned char key_min, key_max;
        opl4_sound_t sound;
} opl4_region_t;

("int" = signed 16 bit, "unsigned int" =
unsigned 16 bit, "unsigned char" = unsigned 8 bit)
```

And each MIDI instrument is defined as an array of "opl4_region_t" elements. The MIDI standard used in YRW801 ROM is the "General MIDI 1" (AKA, "GM1"). If we go to "http://www.midi.org" (the MIDI Manufacturers Association site), and, in particular, to "http://www.midi.org/about-midi/gm/gm1sound.shtml" we can read the "GM1 Instrument Patch Map". In GM1 we have 128 instrument numbered from 1 to 128. If we renumber them from 0 to 127 we obtain, in hexadecimal, values from 00 to 7F that corresponds to the names of the arrays of the MIDI instruments in the yrw801.c file: For example, for the acoustic piano which is the GM1 instrument number 1, we have the 00 hexadecimal and the array:

```
static const opl4_region_t regions_00[] = {
/* Acoustic Grand Piano */
        {0x14, 0x27, {0x12c,7474,100,
0,0,0x00,0xc8,0x20,0xf2,0x13,0x08,0x0}},
        {0x28, 0x2d, {0x12d,6816,100,
0,0,0x00,0xc8,0x20,0xf2,0x14,0x08,0x0}},
        {0x2e, 0x33, {0x12e,5899,100,
0,0,0x00,0xc8,0x20,0xf2,0x14,0x08,0x0}},
        {0x34, 0x39, {0x12f,5290,100,
0,0,0x00,0xc8,0x20,0xf2,0x14,0x08,0x0}},
        {0x3a, 0x3f, {0x130,4260,100,
0,0,0x0a,0xc8,0x20,0xf2,0x14,0x08,0x0}},
        {0x40, 0x45, {0x131,3625,100,
0,0,0x0a,0xc8,0x20,0xf2,0x14,0x08,0x0}},
        {0x46, 0x4b, {0x132,3116,100,
0,0,0x04,0xc8,0x20,0xf2,0x14,0x08,0x0}},
        {0x4c, 0x52, {0x133,2081,100,
0,0,0x03,0xc8,0x20,0xf2,0x14,0x18,0x0}},
        {0x53, 0x58, {0x134,1444,100,
0,0,0x07,0xc8,0x20,0xf3,0x14,0x18,0x0}},
        {0x59, 0x6d, {0x135,1915,100,
0,0,0x00,0xc8,0x20,0xf4,0x15,0x08,0x0}}
};
```

If we choose any other MIDI instrument, the procedure is the same: for example, the acoustic bass corresponds to MIDI instrument 33 (32 if we number the instruments from 0 to 127) and, therefore, the 20 hexadecimal:

```
static const opl4_region_t regions_20[] = { /*
Acoustic Bass */
        {0x15, 0x30, {0x004,8053,100,
0,0,0x00,0xe2,0x18,0xf5,0x15,0x09,0x0}},
        {0x31, 0x6c, {0x005,4754,100,
0,0,0x00,0xe2,0x18,0xf5,0x15,0x09,0x0}}
};
```

And thus with all the 128 instruments of the GM1 standard. The algorithm to play a MIDI instrument ussing the OPL4 will be the following:

1. Choose the regions array "regions_XX" based on the MIDI instrument we want to play (from 0 to 127, being XX the value of the MIDI instrument in hexadecimal: 00 to 7F).
2. Choose, within the previous selected array, the region that fulfills the restrictions: key_min <= MIDI note <= key_max (the MIDI notes are from 0 to 127, 0 corresponds to C-1 and 127 corresponds to G-9).
3. Write in the 0x20+ch and 0x80+ch registers (in that order) the wave table number (field "tone" from the "opl4_sound_t" struct selected in the previous step).
4. Update the pan: bits 0-3, register 0x68+ch.
5. Write F-Number and octave:

```
                    pitch = ((note - 60) << 7) *
key_scaling / 100 + (60 << 7);
                    pitch += pitch_offset
                    Bound pitch to [0..0x5FFF]
                    octave = pitch / 0x600 - 8
                    f-number = ms_wave_pitch_map[pitch
  % 0x600]
```

Write the octave and 7-9 bits of the F-Number at 0x38+ch register. Write the 0-6 bits of the F-Number at 1-7 od the 0x20+ch register.

6. Update volume: 0x50+ch register.
7. Finally: do a key on (bit 7 at 0x68+ch register).

NOTES: "ch" means the channel where we are going to play the note (from 0 to 23) and "ms_wave_pitch_map" references a precalculated table to obtain F-Number values from hundredths of halftone. This array are located in "yrw801.c" file at "http://msx.gabiot.com/index_en.html", too.

Now I will write the code of a function that fires a MIDI note of the acoustic piano on the MoonSound, the routine is easyly adaptable to fire notes of different instruments:

```
          void ms_wave_note_on_channel(unsigned char
          channel, unsigned char note, unsigned char
          volume, char pan) {
                    long pitch;
                    int fnumber;
                    char octave;
                    unsigned char i, bak;

                    if (channel > 23)
                              channel = 23;
                    if (volume > 127)
                              volume = 127;
                    if (pan > 7)
                              pan = 7;
                    else if (pan < -8)
                              pan = -8;
                    /* determine the affected region */
                    for (i = 0; i < 10; i++) {
                              if ((piano[i].key_min <=
note) && (piano[i].key_max >= note))
                                        break;
                    }
                    if (i == 10)
                              return;
                    /* the tone */
                    bak = piano[i].tone >> 8;
                    ms_wave_write(0x20 + channel, bak);
                    ms_wave_write(0x08 + channel,
piano[i].tone & 0x00FF);
                    while ((in(MS_STATUS) & 0x02) ==
0)
                              ;
                    /* calculate f-number */
                    pitch = ((int)note - 60) * 128;
                    pitch = pitch * (int)piano[i].key_scaling /
                    100;
                    pitch = pitch + 7680;
                    pitch += piano[i].pitch_offset;
                    if (pitch < 0)
                              pitch = 0;
                    else if (pitch > 0x5FFF)
                              pitch = 0x5FFF;
                              octave = pitch / 0x600 - 8;
                              fnumber = ms_wave_pitch_map[pitch
% 0x600];

                              ms_wave_write(0x38 + channel,
(octave << 4) | ((fnumber >> 7) & 0x07));
                              ms_wave_write(0x20 + channel, bak |
((fnumber << 1) & 0xFE));
                              ms_wave_write(0x50 + channel,
(volume << 1) | 0x01);
                              ms_wave_write(0x68 + channel, 0x80
| (pan & 0x0F));
                              return;
     }
```

For percussion instruments the GM1 standard defines an instrument (kick, snare, hi hat, etc) for each note of the keyboard. The MIDI standard defines 16 channels in wich we can fire note events and other messages, from 1 to 16. The channel 10 is reserved for percussion, and any "NOTE NO", "NOTE OFF" and other messages through this channel will be interpreted as a percussion instrument events following the "General MIDI Level 1 Percussion Key Map" table located at "http://www.midi.org/about-midi/gm/gm1sound.shtml". Using this schema and using the array:

```
          static const opl4_region_t regions_drums[] = {
                    ...
          }
```

from the yrw801.c file we will be able to play any percussion kit from the MoonSound. We only need to use the same previous function "ms_wave_note_on_channel". For example, "open hi hat" sound corresponds to the MIDI note 46, so to play this percussion instrument we should call ""ms_wave_note_on_channel" with note = 46 and using the array "regions_drums" as our "opl4_region_t" array, instead of "regions_00" that we used for the acoustic piano. With the rest of percussion instruments we will use the same method.

In this article I have tried to clarify the wave table of the MoonSound for all the people who want to surpass the classic MWM driver and want to program the OPL4 from scratch. Notice that the yrw801.c source code has a GPL license. In the next article I will speak about the FM part of the OPL4 chip. My e-mail is avelinoherrera@hotpop.com. Any doubt, correction or suggestion will be welcome.

MOONSOUND in depth
(second part)

In the previous article we have seen how to use the wave table of the OPL4 chip. In this part we talk about the less used part of the Moounsound: its FM part.

INTRODUCTION

The FM synthesis is around the MSX in all of its "external" standards (non PSG). The FM-PAC contains an FM synthesis OPLL chip with predefined instruments and the Music-Module contains an OPL1 chip that allows you to create your own patches from the CPU. The FM synthesis is now surpassed by other synthesis methods like wave tables or physical modelling.

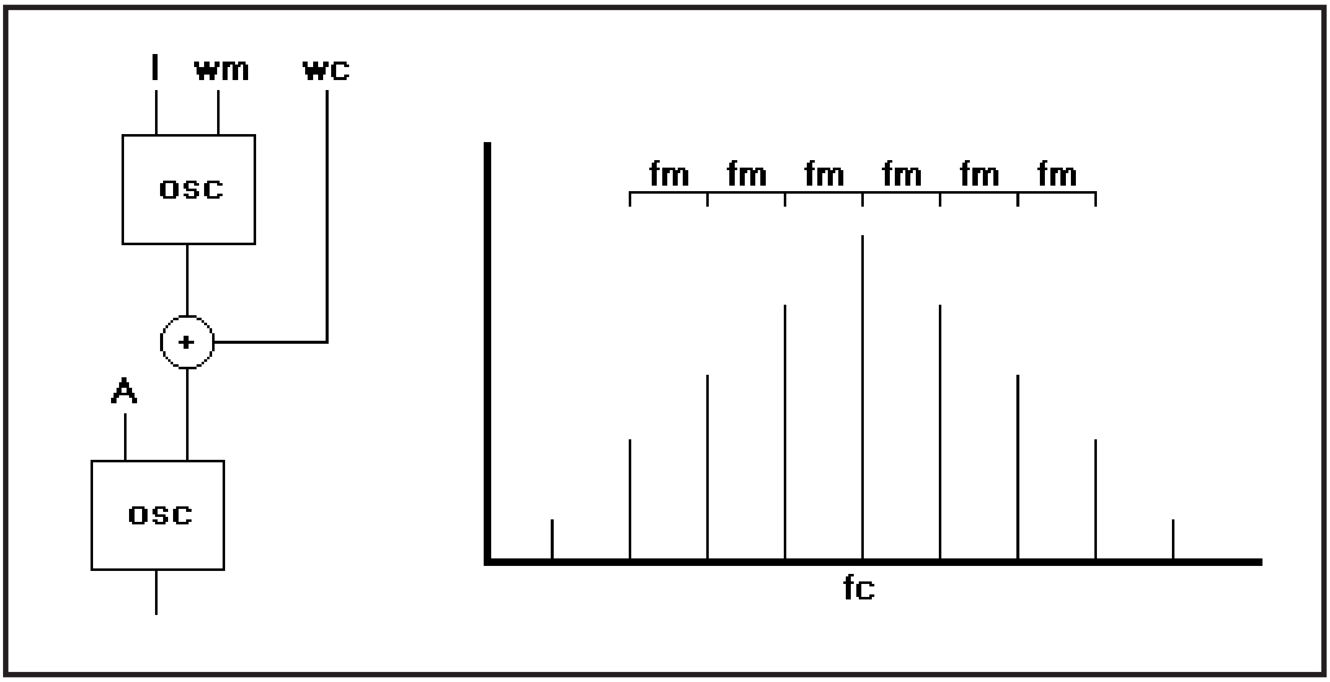
We should take advantage of the FM part of the MoonSound because it can be used simultaneously with the wave table part to obtain richer and dynamic sounds. If we look at the wave table part, we can see that the sound cannot be modified, but with FM synthesis we can twist the sounds in real time without sacrificing wave memory.

THE FM SYNTHESIS

The FM synthesis is a synthesis method that let us obtain very rich patches with little circuitry. On the other side, it is a synthesis method that requires a lot of estimations and it is very difficult to obtain reasonable real instruments emulations if we have not much experience. The concept is very easy: We have 2 oscillators, one called M and the other called C. We suppose that both oscillators generate sine waves. The M oscillator modulates the C oscillator frequency and what we listen is the ouput of the C oscillator.

If M oscillates at infra sonorous frequencies (under the 16 Hz) what we obtain is a vibrato effect, because the perceived frequency of the C oscillator vibrates around a central frequency (like a police siren). If M frequency increases over the hearing threshold the resulting effects are very different. For a sine signal we have "f=A·cos(wc·t)" being "A" the signal amplitude, "wc" the angular frequency (radians per second) of the signal, and "t" the time (in seconds). If we introduce the frequency modulation concept we obtain at C output "f=A·cos(wc·t + I·cos(wm·t))", being A the signal amplitude of the C oscillator (AKA "carrier"), "wc" the angular frequency of this carrier, "I" the signal amplitude of the M oscillator (AKA "modulator") and "wm" the angular frequency of this modulator. As we can see in the previous equation, the amplitude of the M signal modulates the frequency generated by the C oscillator.

The "I" parameter is also known as "modulation index" and it can be calculated as "I=f/fm", being "f" the desired increase of frequency over the carrier and "fm" the modulator signal frequency. "I" can also be written as "I=w/wm" using angular frequencies because "w=2·PI·f" and "wm=2·PI·fm".



For example, if the frequency of the carrier signal is 300 Hz and we want this frequency to vary between 290 and 310 Hz, we must calculate the "I" as "I=10/wm" to obtain the desired variation in the carrier signal.

In the FM synthesis a lot of overtones and undertones are generated around carrier central frequency "fc" (I will use hertzian and angular frequencies indifferently from now on) with frequency steps equal to "fm". Therefore, the side bands generated in the FM synthesis are located at "fi=fc +- (i·fm)" being "i=1,2,3...", so, in the frequency spectrum we have infinite side bands around the central frequency of the carrier ("fc") each one separated "fm" from its immediate neighbour. The amplitude of each one of these side bands is determined by the Bessel functions. It is worth to mention that above "i=I+2" the side bands amplitudes are considered despicable.

It is pretty tedious trying to create real sounds ussing FM synthesis because, as we have seen, the involved parameters are very difficult to calculate (i.e., the Bessel functions). Besides, the fact that infinite side bands are generated over and under the carrier frequency, makes difficult the control over the output spectrum, being necessary to estimate. Also, in the OPL3/OPL4 chip it is possible to connect 4 oscillators in cascade, even using wave forms different from sine ... It is better not to imagine that scenario from a theoretical point of view :-).

THE FM PART OF THE OPL4

The FM part of the OPL4 is an OPL3. That simple. Yamaha reused the LSI mask of the well known YMF262 (AKA OPL3) that it is in the old PC "Sound Blaster 16" and "Sound Blaster Pro" sound cards. I will follow the notation introduced in the previous wave table part article. I use C language and the "in(address)" and "out(address, data)" extensions for port accessing. You must adapt this code for your favourite assembler/compiler :-). As we defined in the previous delivery:

```
#define  MS_FM_BASE   0xC4
#define  MS_STATUS    MS_FM_BASE
#define  MS_FM_REG1   MS_FM_BASE
#define  MS_FM_DATA1  (MS_FM_BASE + 1)
#define  MS_FM_REG2   (MS_FM_BASE + 2)
#define  MS_FM_DATA2  (MS_FM_BASE + 3)
```

We detect the MoonSound reading from base port:

```
char ms_detect(void) {
        if (in(MS_STATUS) == 0xFF)
                return 0;
        return 1;
}
```

If we define these two routines to access the FM part registers of the OPL4....

```
#define  MS_WAIT  while (in(MS_STATUS) &
0x01) {}

/* Write at FM part second register bank */
void ms_fm2_write(unsigned char reg, unsigned
char data) {
        out(MS_FM_REG2, reg);
        MS_WAIT;
        out(MS_FM_DATA2, data);
        MS_WAIT;
        return;
}
/* Write at FM part first register bank. */
void ms_fm1_write(unsigned char reg, unsigned
char data) {
        out(MS_FM_REG1, reg);
        MS_WAIT;
        out(MS_FM_DATA1, data);
        MS_WAIT;
        return;
}
```

...the initialization of the OPL4 is as follows:

```
void ms_fm_init(unsigned char four_op_mask,
unsigned char deep_tremolo, unsigned char
deep_vibrato) {
          /* enable opl3 and opl4 */
          ms_fm2_write(0x05, 0x03);
          /* onfigure 4 operator mode */
          ms_fm2_write(0x04, four_op_mask &
0x3F);
/* disable rhythm mode and configure the tremolo
and vibrato depths */
ms_fm1_write(0xBD, (deep_tremolo << 7) |
(deep_vibrato << 6));
}
```

In the FM part of the OPL4 we can configure a total amount of 36 different operators (oscillators). We have 18 two-operator channels and some of these channel pairs can be joined to obtain four-operator channels. If we number the channels from 0 to 17 and the operators from 0 to 35, we can define the following data structures to store this info:

```
#define  MS_FM_NUM_CHANNELS  18

typedef struct {
        unsigned char mod_op;   /* modulator
        operator cell */
        unsigned char car_op;   /* carrier opera
        tor cell */
} ms_fm_op_map;
```

```
/* this array says, for each one of the 18 chan
nels, what cell operator pair uses */
ms_fm_op_map _channel_op[MS_FM_NUM_CHAN
NELS] = {
        {0, 3}, {1, 4}, {2, 5}, {6, 9}, {7, 10},
        {8, 11}, {12, 15}, {13, 16}, {14, 17},
        {18, 21}, {19, 22}, {20, 23}, {24, 27},
        {25, 28}, {26, 29}, {30, 33}, {31, 34},
        {32, 35}
};

/* these masks let us to join some two-operator
channels to obtain four-operator channels */
#define  FOUR_OP_0_3    0x01
#define  FOUR_OP_1_4    0x02
#define  FOUR_OP_2_5    0x04
#define  FOUR_OP_9_12   0x10
#define  FOUR_OP_10_13  0x20
#define  FOUR_OP_11_14  0x40
```

The FOUR_OP_X_Y mask is used to join the X and Y channels and, thus, build a four-operator channel at channel X. For example, if we initialize the FM part with the call "ms_fm_init(FOUR_OP_2_5 | FOUR_OP_11_14, 0, 0)" the available channels will be: 0, 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17. As we can see, in this list the channels 5 and 14 are missing because they become part of channels 2 and 11 respectively, as the second operator pair. If we don't want to join any two-operator channel we must pass a 0 to the four-operator mask so, in this way, we will have 18 two-operator channels from 0 to 17.

In the OPL4 we have two register groups named "REGISTER ARRAY 0" and "REGISTER ARRAY 1". We access the first register array using the MS_FM_REG1 and MS_FM_DATA1 ports, and we access the second register array using the MS_FM_REG2 and MS_FM_DATA2 ports. Both register groups are similar with some minor reservation: the first register array ("0") let us to configure the cell operators from 0 to 17 and the channels from 0 to 8; and the second register array ("1") let us to configure the cell operators from 18 to 35 and the channels from 9 to 17.

For each cell operator we define the tremolo, the vibrato, the frequency multiplier, the key-scaling, the output level, the attack, decay, sustain and release rates, and the wave form. The registers where we configure these operator parameters are mapped over a 22 register interval in each register array. For example, the attack and the decay rates must be configured in the register interval from 0x20 to 0x35 of each register group, and the wave form is configured in the register interval from 0xE0 to 0xF5 of each register group. If every register group let us to configure 18 operator cells and we have 22 registers for each parameter in each register group, this means that there are 4 unused registers from the 22 ones. That's ok: the offsets 0x06, 0x07, 0x0E and 0x0F are not used and the operator offsets can be defined as:

```
/* offset of the operator cells */
unsigned char ms_fm_op_offset[18] = {
0x00, 0x01, 0x02, 0x03, 0x04, 0x05, 0x08,
 0x09, 0x0A,
0x0B, 0x0C, 0x0D, 0x10, 0x11, 0x12, 0x13,
 0x14, 0x15
};
```

We define 18 offsets instead of 36 (the total operator cell amount) because in the first register group (MS_FM_REG1 and MS_FM_DATA1) we access the cells from 0 to 17, and in the second register group (MS_FM_REG2 and MS_FM_DATA2) we access the cells from 18 to 35 in the same way. To clarify this issue let us write a small routine to configure an operator cell:

```
void ms_fm_set_op_patch(unsigned char cell,
fm_op *op) {
        unsigned char o = 0;

    /*
    if 0 <= cell <= 17  --->  write at first regis-
ter group (MS_FM_REG1 and MS_FM_DATA1)
    if 18 <= cell <= 35 --->  write at second
register group (MS_FM_REG2 y MS_FM_DATA2)
    */
if (cell > 17) {
    cell -= 18;
    o = 2;
}
/* am-vib */
out(MS_FM_REG1 + o, 0x20 + _op_offset[cell]);
MS_WAIT;
out(MS_FM_DATA1 + o, op->am_vib);
MS_WAIT;
/* ksl-level */
out(MS_FM_REG1 + o, 0x40 + _op_offset[cell]);
MS_WAIT;
out(MS_FM_DATA1 + o, op->ksl_level);
MS_WAIT;
/* attack-decay */
out(MS_FM_REG1  + o, 0x60 + _op_offset[cell]);
MS_WAIT;
out(MS_FM_DATA1 + o, op->attack_decay);
MS_WAIT;
/* sustain-release */
out(MS_FM_REG1 + o, 0x80 + _op_offset[cell]);
MS_WAIT;
out(MS_FM_DATA1 + o, op->sustain_release);
MS_WAIT;
 /* waveselect */
out(MS_FM_REG1 + o, 0xE0 + _op_offset[cell]);
MS_WAIT;
out(MS_FM_DATA1 + o, op->wave_select);
MS_WAIT;
}
```

Channels are mapped in a similar way in the FM part of the OPL4. Each channel owns an F-Number, an octave (or "block" using Yamaha's notation), the feedback amount for the first operator and the connection algorithm between the two operators. Each one of these register intervals occupies 9 positions in each register group (one position for each channel). That is, to configure the channel 0 we use the offset 0 at first register group, to configure the channel 7 we use the offset 7 at first register group but to configure, for example, the channel 11 we use the offset 2 at second register group. We can understand it better writting some code:

```
void ms_fm_set_channel(unsigned char channel,
unsigned char feedback_connection) {
        unsigned char o = 0;

    /* we must determine what register group to
 access */
if (channel > 8) {
    channel -= 9;
    o = 2;
}
out(MS_FM_REG1 + o, 0xC0 + channel);
MS_WAIT;
out(MS_FM_DATA1 + o, 0xF0 | eedback_connec
 tion);
MS_WAIT;
 }

void ms_fm_start_channel(unsigned char channel,
unsigned int f_number, unsigned char block) {
        unsigned char o = 0;

if (channel > 8) {
    channel -= 9;
    o = 2;
}
out(MS_FM_REG1 + o, 0xA0 + channel);
MS_WAIT;
  out(MS_FM_DATA1 + o, f_number & 0x00FF);
MS_WAIT;
out(MS_FM_REG1 + o, 0xB0 + channel);
MS_WAIT;
out(MS_FM_DATA1 + o, 0x20 | ((block & 0x07)
 << 2) | (f_number >> 8));
 MS_WAIT;
 }
```

I have separated the channel configuration in two different routines. The second one is the one that fires the note (KeyOn bit in the register interval from 0xB0 to 0xB8) and it can be called often without writting every time the feedback value and the connection algorithm in the register interval from 0xF0 to 0xF0. These parameters will be changed not very often along a melody playing. The bit 0 of the "feedback_connection" byte defines the synthesis algorithm used for that channel: a 0 value indicates that the first operator modulates the frequency of the second operator (normal FM synthesis) and a value of 1 indicates that the operators outputs will be added (no FM synthesis or additive synthesis). If we are configuring a four-operator channel, we can choose an algorithm from 4 possibilities because this algorithm number is calculated combining the CNT bits of the two joined channels. For further details, see the official datasheet.

To stop the playing we put the bit KeyOn of that channel to 0:

```
void ms_fm_stop_channel(unsigned char channel)
{
        unsigned char o = 0;

        if (channel > 8) {
        channel -= 9;
        o = 2;
        }
        out(MS_FM_REG1 + o, 0xB0 + chan
        nel);
        MS_WAIT;
        out(MS_FM_DATA1 + o, 0x00);
        MS_WAIT;
}
```

To play a note in a channel we must calculate the F-Number and the block (the octave). The block number corresponds directly on the octave to the note (from 0 to 7) and the F-Number is calculated from the desired note frequency. Fortunately, in the Yamaha's datasheet we have the note to F-Number mapping:

```
#define NOTE_C      346
#define NOTE_C_SUS  367
#define NOTE_D      389
#define NOTE_D_SUS  412
#define NOTE_E      436
#define NOTE_F      462
#define NOTE_F_SUS  490
#define NOTE_G      519
#define NOTE_G_SUS  550
#define NOTE_A      582
#define NOTE_A_SUS  617
#define NOTE_B      654
```

So, if we want to play the G (SOL) note at the third octave of the piano in the channel 0, we will call "ms_fm_start_channel(0, NOTE_G, 3);". Note that the SUS suffix means "#" in musical notation.

THE PATCHES

Up to here everything is very nice, but the truth is that editting cell and channel parameters to obtain a desired sound

can be very difficult. Luckily, there are a lot of smart people that have created many FM patches (instrument definitions) for the OPL chips ;-). There are some file formats to store FM instruments, but the most used is the SBI (Sound Blaster Instrument) format that let us to store two-operator or four-operator patches.

The SBI format is a very simple file format that stores the "photography" of the OPL registers, so it is very easy to load a patch in a channel to play it. At http://thorkildsen.no/faqsys/docs/sbi-info you can find a detailed description of the SBI file format for two-operator instruments. If the SBI file stores four-operator instruments the data scructure is very similar: The header changes from "2OP" or "SBI" to "4OP" and there are some larger arrays to store the additional info for the two additional cells.

As we did in the wave table part article, we are going to make use of the ALSA (Advanced Linux Sound Architecture) project source code to work with the SBI files. There is a package named "alsa-tools" that contains the "sbiload" tool. "sbiload" is an utility developed by Uros Bizjak and is licensed under the GPL (the alsa-tools can be found at ftp://ftp.alsa-project.org/pub/tools and the page of the author of the sbiload is http://www.kss-loka.si/~uros/sbiload.html). I have adapted the load_sbi routine from sbiload.c to compile it with the SDCC port for MSXDOS ;-)

```
#define  DATA_LEN_2OP       16
#define  DATA_LEN_4OP       24
#define  FM_PATCH_OPL2      0x01
#define  FM_PATCH_OPL3      0x02

/* header */
typedef struct {
   char key[4];
   char name[32];
} sbi_header;

/* SBI instrument */
typedef struct {
   sbi_header header;
   char data[DATA_LEN_4OP];
} sbi_inst;

/* operator */
typedef struct {
   unsigned char am_vib;
   unsigned char ksl_level;
   unsigned char attack_decay;
   unsigned char sustain_release;
   unsigned char wave_select;
} fm_op;
```

```
/* OPL2/OPL3 instrument */
typedef struct {
  unsigned char type;         /* FM_PATCH_OPL2
or FM_PATCH_OPL3 */
   fm_op op[4];
   unsigned char feedback_connection[2];
   unsigned char echo_delay;
   unsigned char echo_atten;
   unsigned char chorus_spread;
   unsigned char trnsps;
   unsigned char fix_dur;
   unsigned char modes;
   unsigned char fix_key;
} fm_inst;

/* offset of the parameters into the SBI file */
#define  AM_VIB           0
#define  KSL_LEVEL        2
#define  ATTACK_DECAY     4
#define  SUSTAIN_RELEASE  6
#define  WAVE_SELECT      8

/* offset for each SBI instrument */
#define  CONNECTION  10
#define  OFFSET_4OP  11

char load_sbi(char fd, unsigned char file_type, fm_inst
*fmi) {
   int prog;
   unsigned char i;
   sbi_inst sbi_instrument;
   char type;
   int data_size = (file_type ==
SBI_FILE_TYPE_4OP) ? DATA_LEN_4OP : DATA_LEN_2OP;

   printf("Loading SBI...\n\r");
   for (prog = 0; prog < MAX_INSTRUMENTS;
prog++) {
         /* read the header of each instrument */
      if (read(fd, &(sbi_instrument.header),
sizeof(sbi_header)) < sizeof(sbi_header))
         return 1;
      if (!memcmp(sbi_instrument.header.key,
"SBI\032", 4) || !memcmp(sbi_instrument.header.key,
"2OP\032", 4))
         type = FM_PATCH_OPL2;
      else if (!memcmp(sbi_instrument.header.key,
"4OP\032", 4))
         type = FM_PATCH_OPL3;
      else
         return 0;
      printf("%03d - '%s'\n\r", prog,
sbi_instrument.header.name);
         /* read the data */
      if (read(fd, sbi_instrument.data, data_size) <
data_size)
```

```
        return 0;
    memset((char *)fmi, 0, sizeof(fm_inst));
    fmi->type = type;
    for (i = 0; i < 2; i++) {
        fmi->op[i].am_vib = sbi_instru
        ment.data[AM_VIB + i];
        fmi->op[i].ksl_level = sbi_instru
        ment.data[KSL_LEVEL + i];
        fmi->op[i].attack_decay = sbi_instru
        ment.data[ATTACK_DECAY + i];
        fmi->op[i].sustain_release = sbi_instru
        ment.data[SUSTAIN_RELEASE + i];
        fmi->op[i].wave_select = sbi_instru
        ment.data[WAVE_SELECT + i];

    }
      fmi->feedback_connection[0] = sbi_instru
      ment.data[CONNECTION];
      if (type == FM_PATCH_OPL3) {
        for (i = 0; i < 2; i++) {
            fmi->op[i + 2].am_vib = sbi_instru
            ment.data[OFFSET_4OP + AM_VIB + i];
            fmi->op[i + 2].ksl_level = sbi_instru
            ment.data[OFFSET_4OP + KSL_LEVEL
            + i];
           fmi->op[i + 2].attack_decay =
            sbi_instrument.data[OFFSET_4OP +
            ATTACK_DECAY + i];
           fmi->op[i + 2].sustain_release =
            sbi_instrument.data[OFFSET_4OP +
            SUSTAIN_RELEASE + i];
           fmi->op[i + 2].wave_select = sbi_instru
            ment.data[OFFSET_4OP +
            WAVE_SELECT + i];
        }
        fmi->feedback_connection[1] = sbi_instru
        ment.data[OFFSET_4OP + CONNECTION];
    }
    fmi++;
  }
  return 1;
}
```

This routine can read SBI files with two-operator or four-operator instruments. The first parameter is the file handle of the SBI file, the second parameter is the file type (SBI_FILE_TYPE_2OP or SBI_FILE_TYPE_4OP), and the third parameter is a pointer to an array of "fm_inst" where the routine will dump the patches (Note that I must write the memcmp and the memset routines because the default Z80 libc of the SDCC does not implement them). The sbiload package, in addition, comes with four very useful SBI files: two files with ".sb" extension and two files with ".o3" extension. "std.sb" contains the 128 patches of the General MIDI standard in two-operator format, and "std.o3" contains the same 128 patches of the General MIDI standard but in four-operator format (better quality). "drums.sb" and "drums.o3" contains the patches of the percussion instruments of the General MIDI standard for two-operator and four-operator channels respectively.

To simplify the loading of patches in the MoonSound we can use the following function:

```
void ms_fm_load_2op_inst(unsigned char channel,
fm_inst *fmi) {
   unsigned char car = ms_fm_channel_op[chan
   nel].car_op;
   unsigned char mod = ms_fm_channel_op[chan
   nel].mod_op;

  ms_fm_stop_channel(channel);
  ms_fm_set_op_patch(mod, &(fmi->op[0]));
  ms_fm_set_op_patch(car, &(fmi->op[1]));
  ms_fm_set_channel(channel, fmi-
  >feedback_connection[0]);
}
```

With this routine, after loading the "std.sb" file (for example), we can do

```
ms_fm_load_2op_inst(0, &(palette[13]));
```

To load a xylophone in the channel 0 and have it ready to play it calling "ms_fm_start_channel" :-) (at http://www.midi.org/about-midi/gm/gm1sound.shtml we have the definition of the instruments of the General MIDI 1 standard. The xylophone is the instrument 14, so we have to access the position 13 of our array).

FINAL WORDS

The OPL4 is the most powerful sound engine for the MSX. The use of wave table instruments and FM instruments simultaneously let the MoonSound to generate sounds worthy of a medium power synthesizer.

Visit http://msx.gabiot.com (my MSX related site); I have put the source code of these two articles in that page. Any sugestions/corrections will be welcome. Mail me at avelino-herrera@hotpop.com.

Happy MoonSounding!

Avelino Herrera

Translation reviewer : **Dunia Suárez-Rivero**

死霊戦線

WAR OF THE DEAD PART 2

PROLOGUE

- Well Cassandra, the Hades gate soon will be opened again. Is really hiding this town the key to finish this corrupt world?



- Cassandra: Brother, the destruction of the town is inevitable. It is written on fate. Now, we will carry out the last preliminaries...



Sun Dorado is a giant and prosperous town rebuilt around the Rinestar tower.

To the south the new nuclear plant Keel is being inaugurated. This will supply all the city.

- Russell: Everything ok?
- Engineer: No abnormalities present.
- Engineer: Thanks to this plant we won't have energy problems anymore.
- Russell: Yes, this is a great achievement for humanity.



Energetic fluctuation detected

- Russell: ??
- Engineer: What the hell is happening?



Don't move!

- Russell: But what...?

From now on we take the control here!

- Taking the control?

- Fisher: At 07:50 the nuclear plant of Sun Dorado has been captured by unknown hostile forces.
- Harris: Sun Dorado is the town which was rebuilt around the Rinestar island...
- Fisher: We should make an agreement with the terrorist according to their actions.
- Cameron: Is it necessary to negotiate?
- Fisher: Yes.
- Lila: But general, if it is just a terrorist action why are we involved in this mission? Please, answer.
- Cameron: ??
- Fisher: Watch this. We found it in the drains when we visited there.
- Weiss: What is this?
- Lila: I am sure about something. It is not from this world... it comes from hell.
- Cameron: So they are here again...
- Fisher: This is the reason because I send you there. I will go too. Everybody...

Harris: Sir!

SUN DORADO

We arrive to Sun Dorado. We are inside the communications mobile unit. We talk to Fisher who is the general in charge of the mission and he tells us that it is the place where the terrorists and the rare criatures are. He goes on saying that the captain Cameron and the other ones are outside and we have to meet Murphy. We talk to Fisher again and since he forgot to give us part of the equipment. It has been improved since the last intervention. As we have to continuously get in touch with our colleagues he gives us a Walkie-Talkie.

We go out from the vehicle and notice that there is a chest on the right so we open it and we get some vitamin capsules which will help us to recover our vitality level in the critical moments. A saving terminal is found too. We talk to two

soldiers and they tell us that the zone on the other side of the bridge is safe and there we will be able to find Murphy.

We cross the river and meet three people. One of them is Murphy who warns us because the terrorists have placed explosives all over the zone. Murphy decides to inspect the north zone of the city whose exit has been blocked by the terrorists, so we will deal with the south zone, where some activities have been detected.

Without wasting any time we head to the south, crossing another small bridge and we enter in a warehouse placed to the west; here we will find our first mutant monster (type 1). It is not a very dangerous enemy so we will kill him easily. We go in the back room. We will find a person who was shutted in there and a chest with vitamin capsules.

We go outside and head to the east of the town; there we will meet someone who tells us that the Riverpark radio station is still emitting. He demonstrates it with his own radio and gives it to us as. We check that the south zone is safe and head to the north again where our colleagues are...

While we are crossing the river we receive an emergency call from our colleagues so we must head to the meeting point because they have contacted some non common terrorists. There is a explosion noise. We arrive to the north-located meeting point and watch the caused damage. We talk to a soldier and he explains us that the terrorists have blown up everything so the road to come back home has been blocked. We can just advance through a hole which has been created on the opposite building because of the terrible explosion. Inside the building we can see lots of boxes and some drums as well as a saving terminal. We can notice that someone strange (type 2) is on the other side of the wall. We go up to the upper floor where we meet another monster (type 1) which is killed easily. We go on and find more vitamin capsules in one of the rooms. We go through an open door and fight a strong enemy (type 3). It will be harder to beat him so maybe it will be wiser to take vitamin capsules. Once it is destroyed our vitality maximum will increase. We go out through the door and go down to the lower floor again. Now we will fight against a monster that we saw before (type 2). We defeat him and go out through the door so we are in the north zone of the city.

SUN DORADO - NORTH

There is the hospital in front of us. We enter there and a zombie rushes towards us (type 4) so we will kill him and examinate the room. We find some vitamin capsules in one of the rooms. We go up to the upper floor and talk to Craven, the hospital director. He asks us for helping Nancy who is inside a house near the hospital.

We leave the hospital and head to the house. We enter there and again we fight with an enemy, a flying one (type 5). Nancy is trapped in the kitchen. We defeat him and Nancy opens the door. We talk to her and he thanks us because of saving her. She also tells us that her husband John is working in the Keel plant and she is worried about him.

We go outside and Murphy contacts us by radio and tells us that he is here, at the library. There is a woman named Carrie with him. She has something important to tell us. We come back to the hospital, to the upper floor, and we talk with Crave again. He tells us that John Russell, Nancy's husband, deals with directing Keel plant. His friend Cunningham has told him several rare stories which happen there. So Crave is worried about John.

We leave the hospital and head to the library. It can be found behind the building where we were. The library seems a quiet place and we've just found a saving terminal in the inner garden of the floor. We go to te upper floor and meet Murphy and Carrie. We talk to Murphy who tells us that the terrorists have also blocked the southwest exit, but the barricade can be blown up with explosives. We talk to Carrie. We did not meet her since our last mission. She is still investigating the legend of the Hades hell and that is the reason because she is at the library. She tells us that she is almost sure that someone opened again the portal which communicates with hell in the Rinestar tower.

We leave the library and head to the southwest. There, next to the destroyed bridge, we can find a small building and a saving terminal. We enter inside the building and we can notice that it is a warehouse. We talk to a man who gives us some explosives. We leave and head to the barricade which is placed to the northwest since we already have the detonator. We stay at the weakest spot of the barricade and we notice that there are only two obstacles in the lower part of that barricade, so we use the explosives there.

We go through the new opened path and listen to a KPAK radio live broadcast. They say that they have an ill woman in River Park then they ask for help if someone is listening to them. Amanda needs medical treatment. We continue and notice that the bridge is blocked by a kind of giant claws.

We come back to the hospital to find that medical treatment. We go to the upper floor and meet Craven and Nancy. Craven tells us that the medicines are in the basement. Nancy is happy since the hospital is safe so wants to know what happened to the Keel plant. They were doing just some tests there. We go down to the basement and another zombie surprises us (type 4). We defeat him and investigate the closets where we find the medicine.

We leave the bulding and come back to the barricades zone where we meet Murphy and Carry. Murphy tells us that he will take the survivors to the base and will contact us through radio later. Carrie asks herself if the hell gate has been opened again. We cross again the barricade and head to the west. We will fight a big monster there. It is a giant crab (type 6). It was the monster who was blocking the path with its claws before. We will be ready to take the vitamin

capsules if necessary and after defeating it our maximum life level will be increased and we will make way to access the west part of the city.

RESCUING GLAZER AND HIS DAUGHTER

Just after crossing the bridge we can see two people inside a small sand precints. One of them is Doyle, a Police Department detective. He tells us that mayor's house is here but he was kidnapped by the terrorists. The second man there is Dolloc, SDPD detective, who confirms that there are terrorists around.

If we head to the west we will find the mayor's house which is watched over by a officer. This officer tells us that the mayor has been kidnapped but Sayla, her daughter, is still safe. He lets us to come in home, where we can watch a blood trace which leads us to the room where one of the terrorists who tries to kidnap Sayla appears. After defeating him, he states that it is too late to save the mayor. We try to find Sayla everywhere but she is not there. Maybe other terrorist kidnapped her while we were fighting. We find vitamin capsules in the kitchen.

We leave the house and ask about Sayla to the officer, but he says nothing back. We notice that the house has a small garden and we can access to the back side so maybe Sayla is there. We discover the subterranean access in that garden. We go down and fight against a strong enemy, a giant squid (type 7). We defeat it and meet Sayla Glazer.

We come up back and head to the streets where we meet the officer and both detectives. We talk to all of them and they say that they will watch over Sayla while we will try to rescue the mayor who is in the town hall. Our progresses can be saved in the saving terminal which can be found downwards.

We head to the northeast and opposite to the town hall the mayor's assistant, Alan, appears. He states that the terrorists keep the mayor in the town hall, but we can't enter there because of the barricades.

Heading to the south again we enter into a small building where a slime has to be defeated (type 7). This building seems the control center for the lifting bridge. Then we go back to the Mayor's house. Sayla is now together with others. We talk to her and she states that the drains are under the town hall. It could be the only one way to enter there. There is a drain entrance to the northeast, close to a blue building. We go down trough the entrance using the ladder. We will arrive to a room but we can't go on because the door is closed. We come back to the streets and talk to Alan. He tells us that the drains guard keeps the key and he is at his home.

We head to the southeast, to the other side of the lifting bridge, and enter inside a small building. There we will fight with another flying monster (type 5) and will defeat it. The drains guard is gone but we meet him in the nortwest part of the town. We ask him where the key is and he answer that we will find it over the green shelf in his home. We come back to the last building we have visited and get the key (Key 1). After that we go down through the drains entrance and open the closed door using the key. We will be envolved in a new fight, now against a slime (type 8) which won't be hard to be defeated. After this battle another one will come, now against a giant squid (type 7). We will go on to upstairs and will enter through an opened door. We have to be cautious since another terrorist is here. We must kill him and continue upstairs.

Finally we are inside the mayor's house. Yet another terrorist will try to beat us. A saving terminal can be found behind the desk. The main door is blocked by a barricade so we go upstairs. There we will fight with other terrorist and then another one in the room which is to the left. This one seems to be one of their leaders. After defeating him we enter through the door which is opened for us and we find vitamin capsules. We go upstairs again and meet other terrorist. After defeating him we will enter through the only door which can be opened, between the other two ones. A real hard enemy (type 9) is waiting for us, so is better having the vitamin capsules ready. Once the enemy is defeated our maximum vitality will be increased.

Finally and after going through the door we meet the mayor Glazer. He asks us if we are members of the special operations team and if we are there to kill all the monsters. We leave the rooms and go downstairs. We go through the door to the left (the one which we used before) and meet the detective pair close to one of the criminals who was defeated. Polloc congratulates us because of beating the terrorist leader Alex. He tells us that Alex organized all this criminal actions by himself being helped by some of his allied partners. Alex tells us that they are not involved in what happened in the nuclear plant, but only in kidnapping the mayor.

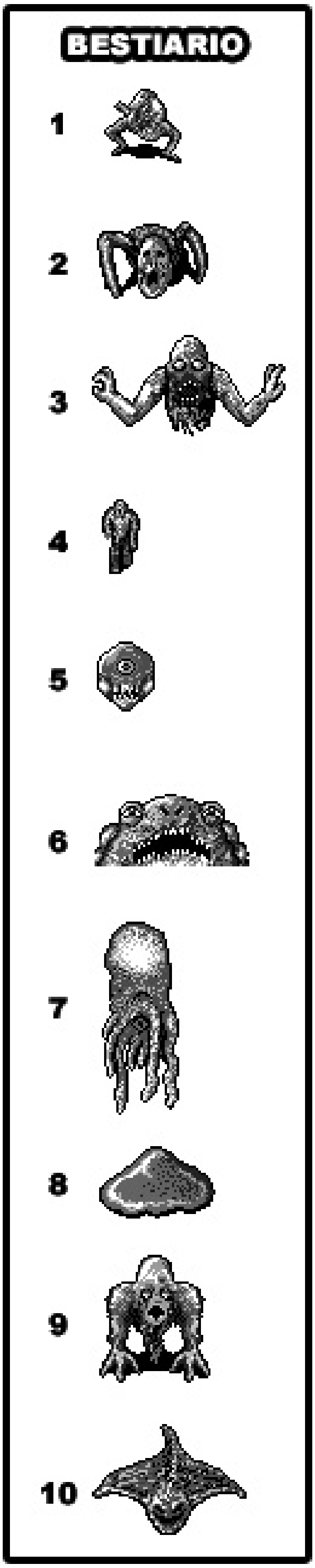
We go upstairs again and talk to the mayor. He tells us that we can access the town cente through the lifting bridge. He gives us a key (Key 2) to use in the control room (inside the small red building).

We leave the building through the drains and head to the south towards the control room. There we'll use the key but before we will massacre a monster (type 8) bursting it with bullets. We leave again and head to the bridge which goes down to let us to go to the center zone of the town.

TOWN CENTRE

Without wasting time we will cross the bridge and arrive to the town centre. We enter into the parking which is placed to the left (under one of the skyscrapers, the Sunset tower). One man there says that her wife is trapped in the bank. We leave and go downwards. We can see a bank and inside we will fight to a flying enemy (type 10). We finish it. We watch

a safe and a saving terminal (there's another one outside, to the left of the bank). If we approach the safe we can hear a woman's voice asking for heko, They are inside the safe. There's no air inside and they are suffocating so we must open the door!



We come back to the parking and talk to the man again. He knows that inside the heliport there is a blowtorch so we can use it to open the door. We head to the heliport and there we fight with a strong enemy (type 11). We defeat it and get the gas blowtorch which is inside one of the trunks. Of course, we get all the vitamin capsules we find.

We head to the bank again and use the blowtorch in front of the reinforced door of the safe. It collapses and inside we find two people who are still alive. We come back to the parking and the man there tells us that he saw people who have our same uniform in the bridge which is to the west. We head there and meet Murphy and Carrie. Murphy says that the captain Cameron and his men are coming and they are waiting for them. We head to the parking again and we see a new person there. The rescued woman has meeting her husband. He tells us that we can cross between cars to access other zones of the parking so we go inside again.

We receive a call. We must go back with Murphy because everybody has arrived. We go there and fight a slug (type 8) which tries to watch over the entrance to the bridge. Once it is destroyed we arrive to the meeting point and meet all our colleagues. Harris and Cameron say us that Hades hell is preparing something and we can't let more people to die. Weiss is worried because the ones who captured the nuclear plant are really well organized. Murphy tells us that we have to find survivors and inform Fisher of everything.

We go inside the parking again and watch the parked vehicles. We can find vitamin capsules to the right. We can only visit the north part if we cross through two empty spaces between cars and columns. If we use the left one will meet a giant zombie (type 12). After killing it we come back to talk with our colleagues. Carrie states that the gate to the other world has been opened (maybe using a magnetic field) so the Hades hell is near. Cameron tells us that he, Harris and Weiss will investigate the nuclear plant and we and Carrie will have to find the opened gate to hell. We talk to everybody there again and Carrie asks herself if the person behind everything is the same who was in our first mission. Murphy orders us to gather all the information.

We head to the bank now and the director tells us that we can advance through a big door which is in the bottom wall of the parking located at the Centenary towers.. We will need to use the control panel to open it. We come back there and open the big metallic door.

It is advisable to take vitamin capsules because this zone is plenty of criatures. We can get them from the trunk which is in the lower part (to the left) of the parking. Once we have crossed through the door we will fight with a giant zombie (type 12). We advance again and fight with another enemy (type 2) and later with a slug (type 7) and again with an arachnid enemy (type 2). Finally we fight with a big enemy, an enormous mutant worm (type 13). After finishing it our maximum vitality will be increased.

DANGER ZONE

We advance and leave the subterranean place. We are in other zone of the town now. It is completely devastated. No need to walk too much to see that one of the streets is occupied by a new class of giant worm (type 14). A saving terminal can be found there too. The worm can only be damaged if receives shoots in its weak point. To access to its weak point we must be placed in a perpendicular street to the worm. This street is located at its left. This enemy requires patience.

Once the enemy is defeated we can notice that the street is blocked and we can't advance. But we find an access through alternate streets to pass these barricades. We arrive to a building with three floors, the police department. We go inside. There's nobody inside the first floor but we find a trunk with vitamin capsules. We go downstairs and after crossing two doors we arrive to prison. Here we meet the detectives and the terrorist Alex who is jailed. The detectives we will interrogate him, so we leave the prison. We meet a policeman who states that someone is lying down on the streets, close to the police department.

We go outside and head to the south. There we meet the person that the policeman talked about. After talking to him he gives us access to the closer building, so we enter there. This builing seems a deserted warehouse. We go through the door which is in front of us and suddenly someone call us (Lila Alphon!!!!). It seems like someone has set us a trap. The man tells us that he is sure of this: We won't be able to stop the attack to the policeman station... Alex knows too much and

must die.

We check the door and it is closed so we go upstairs where we meet another terrorist who wears a grey raincoat. He is a strong enemy but we finish him. Nothing interesting is found after examinating the floor so we go downstairs. Another fight against a terrorist begins, but we defeat him too. There's no exit so we go upstairs again. Yet another terrorist appears so he has to be defeated. We finish him and examinate the floor again. On the southwest room we find a dead body. We search on his clothes and find a key (Key 3). We go downstairs and open the door with the key. They have wasted our time and we must go to the police department urgently.

We arrive to the department and it has been destroyed. The scene sight horrifies us. Who could spread this devastation? We go inside and a nervous policeman tells us that a big monster destroyed the building. This monster is still inside. We go downstairs, towards the jails and meet Doyle. He states that Dolloc took Alex to the third floor and the monster chases them. We go upstairs and when we are in the second floor we meet another policeman. He says that the monster is in the third floor. We head to the third floor, go upstairs and go through the first door. Here we meet the enormous moster (type 15). This enemy is really though but the head is its weak point. We will shoot ahead to finish it. After shooting some bullets to its head the enemy will run away.

We enter through the door which is in front of us. We will meet Polloc and the terrorist Alex. Alex knows that the monster was sent to kill him. Polloc says that he will try to keep Alex alive. We talk to Alex again so he confesses... he says that their boss is a religious sect leader. His name is Ramond and he is the one who attacked the nuclear plant.

We move back and after crossing again the door we meet the enormous monster which came back to fight. We try to kill it again but he run away for the second time. So we move back to the room where Polloc and Alex are but they are gone. But now we can go through the door which is in front of us. And then a new monster appears, a flying one (type 10). We finish it and go downstairs using the fire escape to the lower floor. There we meet Polloc, a policeman and the moribund Alex. Polloc states that the monster attacked Alex. The terrorist is dying but whispers some words about the sect (Morth... malcult...) but finally dies. The policeman asks himself what is the meaning of these words. We talk to Polloc and he says that the enormous monster is still alive. He adds that in the first floor there is a secret access through a locker and he heard strange noises coming from there. Maybe the monster hides there. He gives us the key to access through these lockers (Key 4).

We leave the room through the south door and arrive to the second floor. We go down and cross through the broken desk place. There we see a red locker. We go closer and open the secret access through it. And yes, the monster is there. We try to shoot him but our ammo won't wound him. We have to get special ammo which can be found in this same room (the armory). We can find that ammo in the left locker. So we can damage the monster shooting at its head using this new ammo from the upper side of the room. So we will kill the monster in a easier way and after his death we will get our maximum vitality level increased.

We leave the room and meet the policemen and Doyle. We talk to them and Doyle thanks us for our job. We go upstairs and talk to Dolloc. He has discovered the meaning of Alex' words... Morthmalcult Ramond. He also says that he will deal with Alex dead body and he will wait for us at River Park entrance. We go downstairs and talk to the policeman who asked himself about the meaning of these words. We explain what the meaning is so he says that he attented to a meeting of a sect called Morthmalcult and they announced the end of the world. This sect kept in touch with other parallel worlds and creatures from further on. The preacher could be Ramond. We leave the building and head to the south where Dolloc is. He opens the door to the park for us and tells that he will investigate Alex words.

RIVER PARK

We enter the park and receive another KPAK radio emission, asking again for Amanda's medicine; the speaker tells us that the station is located near the north bridge of the park. We go to the northeast and see a little blue building with a parabolic dish. No question this is the radio station. There is a saving terminal in the entrance.

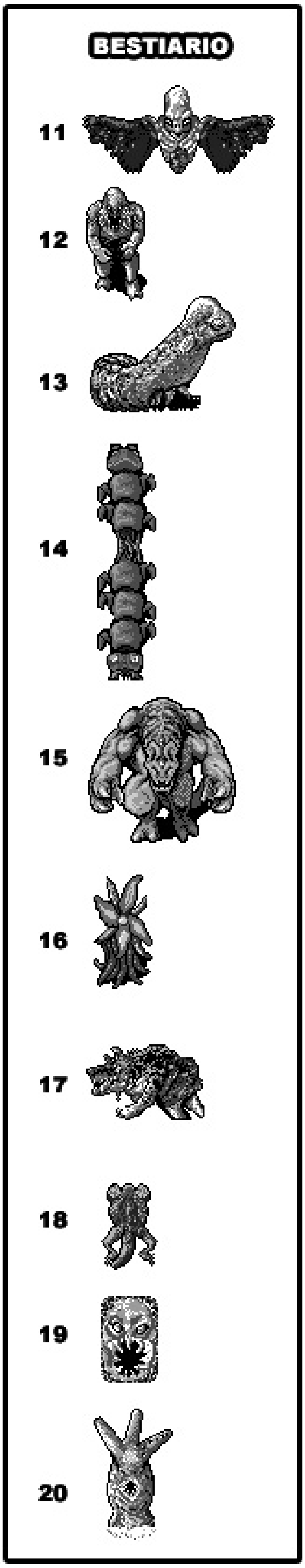
We go in and in the first floor we kill a zombie. We also find some vitamin capsules. Then we go out and up the stairs to the upper floor. Here we find the radio station. We head in and hear a dog barking, he is speaker's dog. We talk to him, who's called DJ and his dog Bogey, and tells us that we have to carry the medicine to Amanda, at her home to the southwest.

We leave the radio station and head to Amanda's home. Through the way we hear DJ letting know Amanda that she will get the medicine soon. We arrive to the house, but it's watched over by a big mutant plant (Type 16). We destroy the plant firing just in the middle and get into the house. In one room is Amanda's mother. We give her the medicine so maybe he will get better.

We get out of the house and head again to the radio station. Trough the way we hear another emission from DJ: a monster is attacking the radio station. We arrive to the station and fight with a giant dog (type 17), in the upper floor. Once defeated, we go in the studio where DJ was hiding. DJ tells us that his dog tried to protect him from the monster but died.

Then we go out the studio and find a collar where the monster was: it is Bogey's collar. The monster we've killed was Bogey mutated to that horrible creature. We talk again to DJ and he tells us that he has seen a journalist walking through the park. We go out to search him. He is in the center of the park, near a fountain.

Dolloc is also there and introduces us the journalist, called Voyt. We talk with him and he tells us that he wrote an article about Morthmalcut Ramond for Sun Dorado journal. We talk again with him and he tells us that Ramond has created Morthmalcult. In the beginning it was just a club, but it got more followers during eleven years. Acually they are a lot and among them there is a strange priest, half human, half beast. We talk to Polloc and he tells us that he has talked with Finley about who really Ramond is. He reveals that Ramond is not hiding in Rinestar tower. We continue talking with Dolloc and he tells us all he knows about Ramond: his real name is Clive Lloyd and he murdered his father eleven years ago. Gren Lloyd and his wife got two sons, Clive and a girl, who was never shown in public due a strange illness. Gren was murdered soon and after that his wife killed herself. Both children are missing since then. Our conversation with Polloc goes on and he tells us that Clive usually lived in the outskirts of the old town and maybe we could find evidences there. We talk to the journalist and he tells us that the strange priest is maybe Clive's sister. Talking again with Polloc he tells us that in the way to the east there are barricades too. We have to find another way.



We come back to Amanda's home to see how she's doing. The medicine has made effect, and she is completely recovered. Her mother thanks us and Amanda tells us that there is a way to the outskirts through the sewer system. The entrace is under the water tank, in the southeast of the park.

We go there and we enter trough the back of the water tower. We get in the sewer, avoiding the tentacles that go up from the water. After that we find a giant toad (Type 18). We'll kill him easily. We will follow our way, avoiding the flying fishes that attack us. Finally we arrive to an enemy inlaid in the wall (type 19). We have to attack him only when it's visible. Once defeated, we will be able to go up the outside trough the stairs. (INSERT DISC 2)

SUN DORADO OUTSKIRTS

We are in the town outskirts. It's a dark place plenty of poverty and delinquency. The bar McKoy's is near so we head towards it. We go inside where we can see four people. We talk with the one who is in front of us and he welcomes us. He continue talking and says that he is a retired captain named Decker. He gives us a gin bottle. We talk to the woman who is playing pinball and she says that her name is Jennifer. Later we head to the priest and he reveals that gods blessed him (he seems to be drunk). We get the vitamin capsules if we need them and leave the bar.

We head to the east, to the church. There is a man who does not let to go in because we are strangers. We head to the north and talk to a girl who tells us that her older brother is the leader of the Stranglers band, but he is a good boy.

There is a saving terminal to the southwest. We move back to the bar and talk to Decker. He says that he belongs to that band and he does not want to stay there much longer. We head to the church again and now we can go in. There are four people and one of them say that we are inside the Stranglers hide-out. We talk to the one who is close to the cross. His name is Zack and he tells us that the priest is a drunker. He adds that in the past good things were made in Sun Dorado but now everything seems to be cursed. We talk to the others there again; they ask themselves who we are and what we are doing here.

We go out and head to the building which is to the northwest. We go in and check the painted walls. We can't go in through any door so we go upstairs. There's nobody there. We find an opened door and we go in. We meet a man there. He tells us that Zack stole him a pendant which was a present from his mother.

We come back to the church where we fight with a zombie. We will go in and talk with the band members who think that they are safe of the zombies. Zack says that he does not know anything about the pendant.

We head to the bar where we can talk to the barman now. McKoy says that these zones are the slums of the town, the Stranglers zone. There is no law here. He adds that Lloyd's home is to the east but nobody lives there now.

We head to that house and while we are near the cemetery we find a scary man. He saw a monster at the sea, to the north. We go to the church and inform everybody. Zack' sister could be in danger because she was there. We leave and head to the north sea. There we will fight with a marine monster (type 20). Once defeated we will find Zack's sister. She tells us: thanks bro... Does it mean that she is our sister? Zack has come here to help her sister and when he notices that she is safe he thanks us because we rescued her. As gratitude he gives us the robbed pendant.

We come back to the building which is to the right and go

upstairs to give the pendant to his real owner. He thanks us and tells us that in the lower floor a woman who knew very well to Lloyd lives. She is Jennifer and we met her at McKoy's bar. We go downstairs and we check that we can't go in through any door. We leave the building and go to talk with Zack and his band members.

Coming back to the bar we talk to the barman who confirms us the story of the murder of Gren by his son Clive. We move back to the church and notice that the priest is there. He states that Jennifer has also a house near the cemetery. We come back to the building and to the left in the first floor we meet Polloc and Jennifer. Dolloc states that her knows a lot about Lloyd. We talk to her and she tells us that she was a friend of Clive and Cassandra Lloyd. She says that Cassandra was kept here because of her strange illness... She disappeared eleven years ago. Polloc tells us that we have to investigate Clive's house. We ask Jennifer if she has the key of that house and she nods, so we receive this key (Key 5).

We head to the house, to the southeast, close to the cemetery. We go in and arrive to a large room and we hear Clive's voice. He states that he is here and we are trapped. We go to the exit and meet Clive invoking a monster (type 21). We try to kill the monster but when we almost lose our energy, we are captured.

CAPTURED

We are now in an unknown place, kept in a room. While we try to find an exit we hear Clive's voice. He appears on the window which is in front of us. He took all our equipment out so he says that we do not have to try anything. We talk to him and he adds that he does not want to kill us because we like him are the Hades guardians and Hades who does not want people living happy... Half of his body is changing like other creatures did. He has been purified by Hades. He swear that the whole world will live terrified by the creatures. We continue talking to him and he says that he has to leave because the time is gone. The gate to the Hades hell is opened again. So Clive leaves and while we are kept here.

A short time has passed and while we are walking inside the cell someone open the door. It is Cassandra, Clive's sister. She don't agree with his brother because he changed too much... So now we can stop him. He tells us that we have to walk through the underground to go out. We continue talking with her and she tells us that our weapon is inside the contiguous room. The monster who defeated us is watching over it.

Before entering and fighting the monster we can save our progresses in the saving terminal. We go in and first we have to avoid the enemy attacks to get our equipment which is inside a trunk to the right. We kill the enemy (type 21) and get the vitamin capsules from another trunk there.

We go out and head to the right. We will fight with a terrorist before arriving and after killing him we arrive to a underground station. Here we have to kill another enemy (type 22) which can't move. We go downwards, go to the rails and then continue through the tunnel. We will find 2 giant toads (type 18), three monsters (type 21) and then another giant toad before arriving. We can watch a stopped train in the rails and a trunk with vitamin capsules in the cab. We continue ahead and fight with another giant toad. After killing it we go on.

We arrive to a place with no apparent exit because of a caving in, but we can watch a train under the rubble. So we can continue inside the train. We go in the train and see it is devastated. We go to the next carriage and fight with a new enemy, another class of worm (type 23). We defeat it and continue to the next carriages where we will fight with two more worms. Finally we can't continue so we leave through a door to the left of a carriage. Being outside we fight with another enemy (type 22). We go to the right and arrive to a small sewers labyrinth. We can hear a shooting sound coming from a near place. We go to the east and then to the north to go again to the east where we will meet a man and vitamin capsules. The man asks for something to drink and we give him the gin bottle. We talk with him again and he tells us that there is a hidden path at the northwest corner of this place.

We come back to the entrance of these drains and go up through the corridor which leads to the north. We cross the canal through the red zone because it seems like it is plenty of stones because of the pulling down, making our walking easier. We go on and move to the north. Here we can see our next enemy. We continue to the east, then to the south and again to the east. After arriving to the to the easter part we go to the north and then we fight with the enemy which is on the canals: a class of larva (type 24). Once defeated we can go on through the canal in its less deep zone until the northeast corner. Here we find the hidden path. We can go in placing ourselves in front of the northern wall and walking to the left. We cross through the hidden path and arrive to a ladder. We go upstairs.

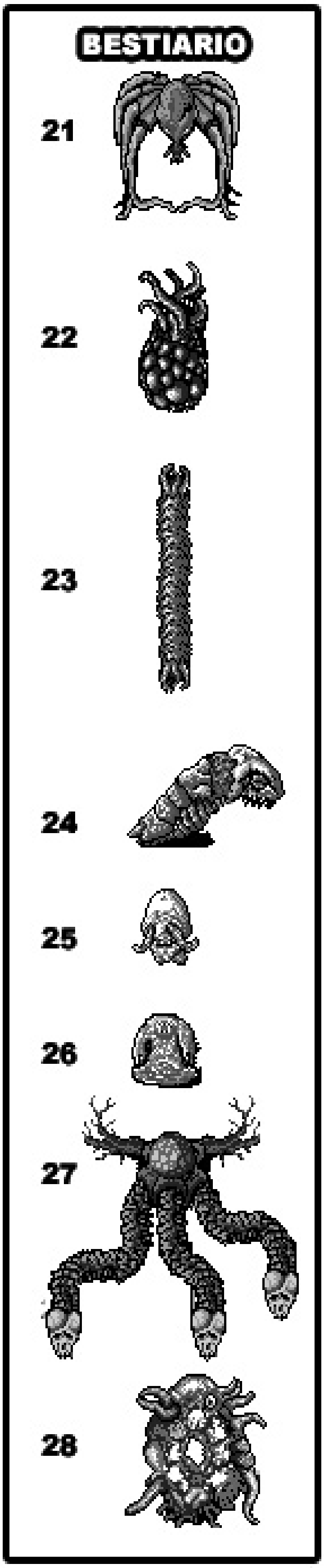
MILITARY CAMP

We have arrived to the military camp. We head to the south and receive a call from Cameron asking for help. They have been cornered by the enemy. We talk to a soldier who is near the factory and he thinks that we are a private. We can watch a terminal saving in front of the factory. We go to the southeast and meet Decker close to the hangar number 3. We talk to him and he he tells us that he sent one of his men to that hangar and he did not come back yet.

We go in the hangar and everything is dark. We can't see anything and it seems like there's somebody who shoots us so we leave quickly. Decker says that we should ask for help to the soldier. We talk to him and he gives us the thermal goggles. We come back to the hangar 3 and kill a monster (type 11). Once it is annihilated we cross the door which is

opened and meet someone lying on the floor. He is the Decker's friend and asks us for giving something to Decker before dying. It is a key (Key 7).

We go out and talk to Decker. He tells us that we should use the key to start the speedboat which is tied up at the docks. We get into the speedboat and start it. We sail to Keel where the nuclear plant is. We go up a small hill and head to the east. We can meet a man, an helicopter pilot, who is waiting for Mr. Cunningham. We go in the facilities and find a saving terminal. We also watch a bridge joining two buildings.



We enter in the eastern building since it has its door opened and we find vitamin capsules. We can't go in through the door which is in front of us so we go downstairs at the left. Here we will fight with a terrorist. One of the accesses has been blocked so we enter through the door and save Cunningham. He says that Ramond jailed him there. He was the one who stopped the nuclear tests. He adds that the terrorist has now the control. We go up to the upper floor and now the door which was closed is surprisingly opened. We go in and fight with another terrorist in a large room. There is another saving terminal and some bridges over us. We go on through the north door and fight with a new enemy (type 25). We go up another floor and again we find the same class of enemy. We go on through the south door and go through the bridges we saw before, crossing the room. Yet another terrorist waits for us. We go to the right and access other building.

Just entering there we meet AL, from the religious sect. We fight but he disappears. We go to the north and fight with another enemy (type 25). We go the lower floor and yet another enemy waits for us. We continue through the south door and appear in another room where we meet a terrorist and find a saving terminal. This building is symmetrical to the other one. We go out using the south door even if it can't be seen because it is hidden because of the bridge. We get the vitamin capsules of this room and go downstairs at the right. Another terrorist waits for us. We open the left door and rescue Russell. We go upand head to the first building. Over the bridges we will find another enemy. When we are near to defeat him he run away saying that he will stop the water cooling system which cools down the nuclear jet so everything in Sun Dorado will be destroyed.

We come back to the basement of this building to talk again with Russell. He tells us that stopping the cooling system will cause the jet fusion. We must stop the jet and we can arrive there using the passage which is at the right wall. We must find the control room and activate the emergency cooling. We walk to the right in this room and the wall opens in front of us. We go downstairs and arrive to a corridor where we find another monster (type 26) but it is not too hard to defeat. We go through the right corridor and go upstairs.

We arrive to the inner part of the jet where there is a not strong enemy (type 9). We go downstairs to the right and enter through an opened door. We arrive to a room which cooling cylinders and we find the same class of enemy. We can see the swimming pools with the water which cools down the jet and the control room. We go in and meet Harris, who gives us the key of the jet control panel (key 6).

We go out and go to the north. Finally we arrive to the jet, but it is watched over by a three-head big monster (type 27). Being helped with the vitamin capsules we will be able to kill it. After defeating it our maximum vitality level will raise its top. It is a good moment to use the key that Harris gave us with the control panel.

We've got it, the reactor is stopped and the emergency cooling system is enabled. We move back and go upstairs. Again we go to the left and go upstairs but we notice that we can't advance since it is blocked. But we can see Harris and Cunningham. We come back where Russell was and notice that he is gone. We meet him in the corridor, a bit further, with Weiss. We talk to them and Weiss asks us that if the hells gate is not there... where is it? We go upstairs and now we can go out through the south door. We come back to the first building (the eastern one) and go down to the basement. We talk to Harris and Cunningham. Harris tells us that Cameron and Weiss are there.

We leave the building and go to the north, where the jets are. There Cameron tells us that he does not believe that the Hades hell gate is there. Cameron keeps Al there but he still states that it is too late. We go to the north and listen to a Murphy's transmission. He says that Carrie has detected the origin of the electromagnetic fields provided by the gate. They come from the Centenary Tower. We tell it to Cameron... it seems like everything was a trap. Al nods.

We go to the second building and go to the basement to talk again with Russell. He tells us that the best way to enter inside the Centenary Tower is using a lift located at the parking. We leave and come back to the other building to talk with

Cunningham who lets us to use his helicopter. So we leave and head to meet the pilot, who is waiting where the helicopter is. We talk to him and get into the helicopter.

We land in front ot the Centenary Tower. It seems like the monsters have wreaken havoc all around. We go in the parking which is to the right and a giant plant waits for us (type 16). We go deeper into the parking. Everything is devastated and the fire is all around. We must access to the northwest zone through a small hole between a car and a wall. There we find two lifts and we use the left one. After pressing the button the door opens. We go in and we go to the upper floor. The corridor there has a saving terminal. We cross the right opened door and arrive to a large meeting room. We talk to a man who says that everybody there has run away. The building is destroyed but the other tower is even worse. He also adds that the control room of the lifts is inside the floor 24.

We leave using the northwest door and find more stairs. We go up many floors until locate a room with the door opened. We go in a large room which has another enemy (type 19). We get the vitamin capsules from a trunk and we go out through the southwest door. Arriving to other corridor a monster appears.

Once the monster is defeated we go in the lifts room control which is located to the left. We use the computer placed in one of the tables and activate the system. Just then we hear an emergency call coming from one of the phones there. We pick up the red phone which is in the other table and someone tells us that he is trapped in one of the lifts at the floor 40. We go out and go to the door of the right lift. A zombie going out from it will attack us.

We go up until the floor 40 where we find a saving terminal and an opened door. We go through that one and kill other enemy. We go forward through the right door and arrive to a room where another giant toad apperas. There are vitamin capsules too. We leave through the south door to the corridor where we fight with a giant worm (type 13). Once it's defeated we can rescue the person who was trapped inside the lift which is placed down, the right one, which has the door opened. It is Carrie, she tells us that she was wrong regarding the location of the hell gate since it is in the other tower. She says that she came with Murphy and he is at the attic. We push the lift buttons and go up.

We go out and a zombie goes out from the other lift and attacks us. We enter in the left room and another enemy waits for us. We open the north door and meet Murphy. He says that Clive is waiting for us at the other building. We get some vitamin capsules in this room and go out. After killing the worm of the same class that the ones we fought at the underground we go upstairs. We arrive to a room with a saving terminal and go out through the south door. We are now at the tower roof.

We go to the left part of the roof and we can feel the presence of the Hades hell gate. No way to access the other tower is available so we go down and ask Murphy. He tells us that there is a control panel which drives the emergency bridge. We go up to the roof again and drive the mechanism which can be found to the south and opens the emergency bridge. We have to be careful because a big enemy (type 28) will appear and won't let us to cross the bridge until it will be defeated.

We arrive finally to the Sunset Tower, which is more devastated than the previous one. We go downstairs and examinate the floor. Half of the tower has been destroyed. There's nothing here so we go down one floor and then another one. Here we find a saving terminal. We go doen again and another enemy appeares (type 28). This floor seems not to be damaged; we are in the floor 57. As the stairs to go down has been blocked we go into the lift which is to the southwest and arrive to the floor 42.

When we go out we can see that the central room is occupied by a monster. After defeating it we can take some vitamin capsules because we will need them. We go out using the upper door and go upstairs. In one of the rooms we will meet Cassandra. We talk to her and she states that she does not want to live anymore in a world like this one and nobody would understand her. She asks for her own death and attacks us so we have to finish her. After defeating her she lies on the floor. We talk to her and she states that to defeat her brother we have to use his medallion and in that way we will close the gate to Hades. We cross two doors to the south, we find a saving terminal and then go upstairs.

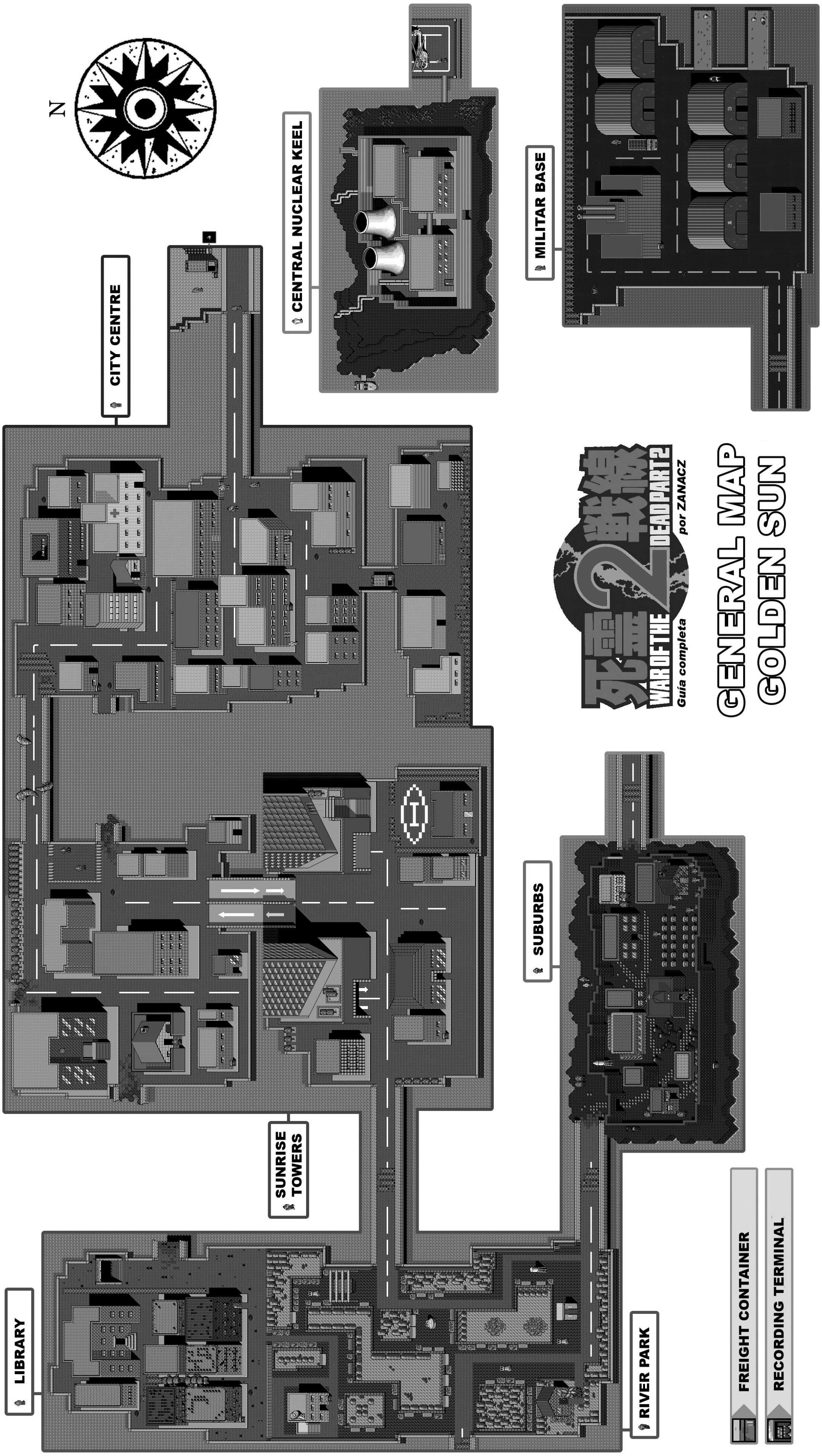
Finally we arrive where Clive is. He incites us to join him so we will become the gate guardian because Cassandra did not want to be the one becoming weak and worthless. He says that he has the Hades' power inside him and he will unite both worlds. With our help everything would be quicker but he does not want it so he decided to kill us right now.

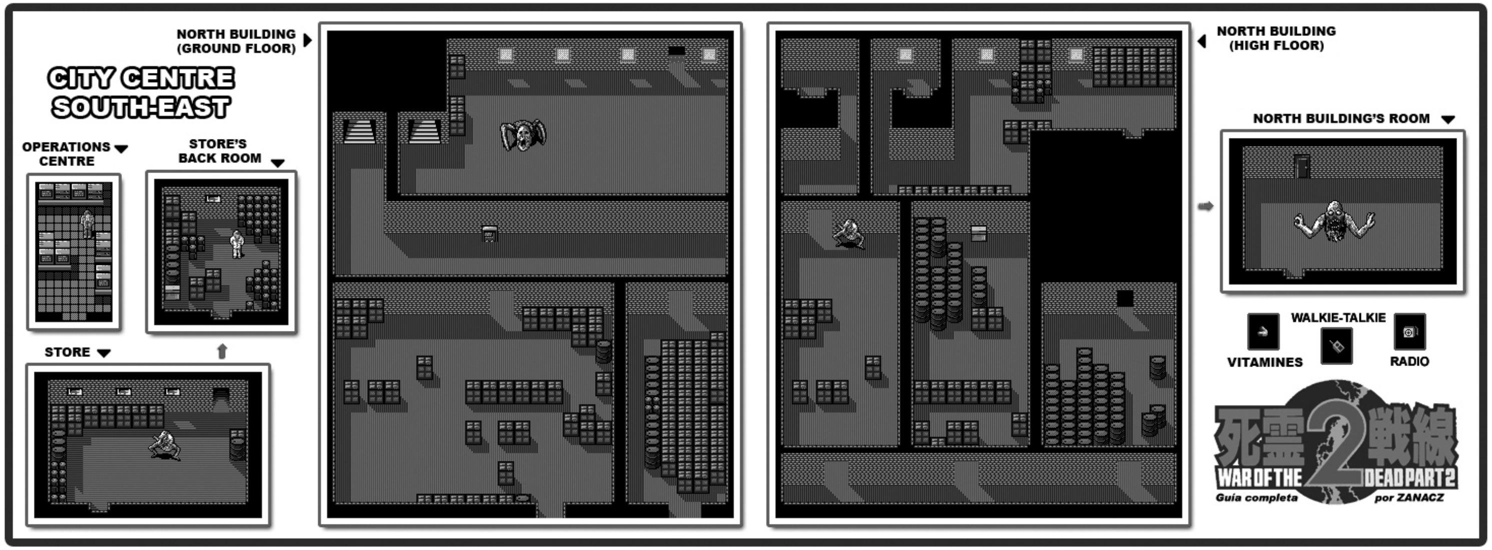
Clive becomes a horrible monster. We fight with him and when we are going to defeat him he disappears leaving a medallion that we take. We hear a big noise and something giant comes from the Hades' gate, another great enemy. We shoot to its tentacles to defeat it... with its death it disappear coming back to its world. We can now seal the gate. To do this we stay in front of the big hole and use the medallion. Finally the gate is completely closed again. We go down and talk to Cassandra who asks us if we did it so we nod. She says that it has never to happen again so she asks to do nothing for her... then she dies.

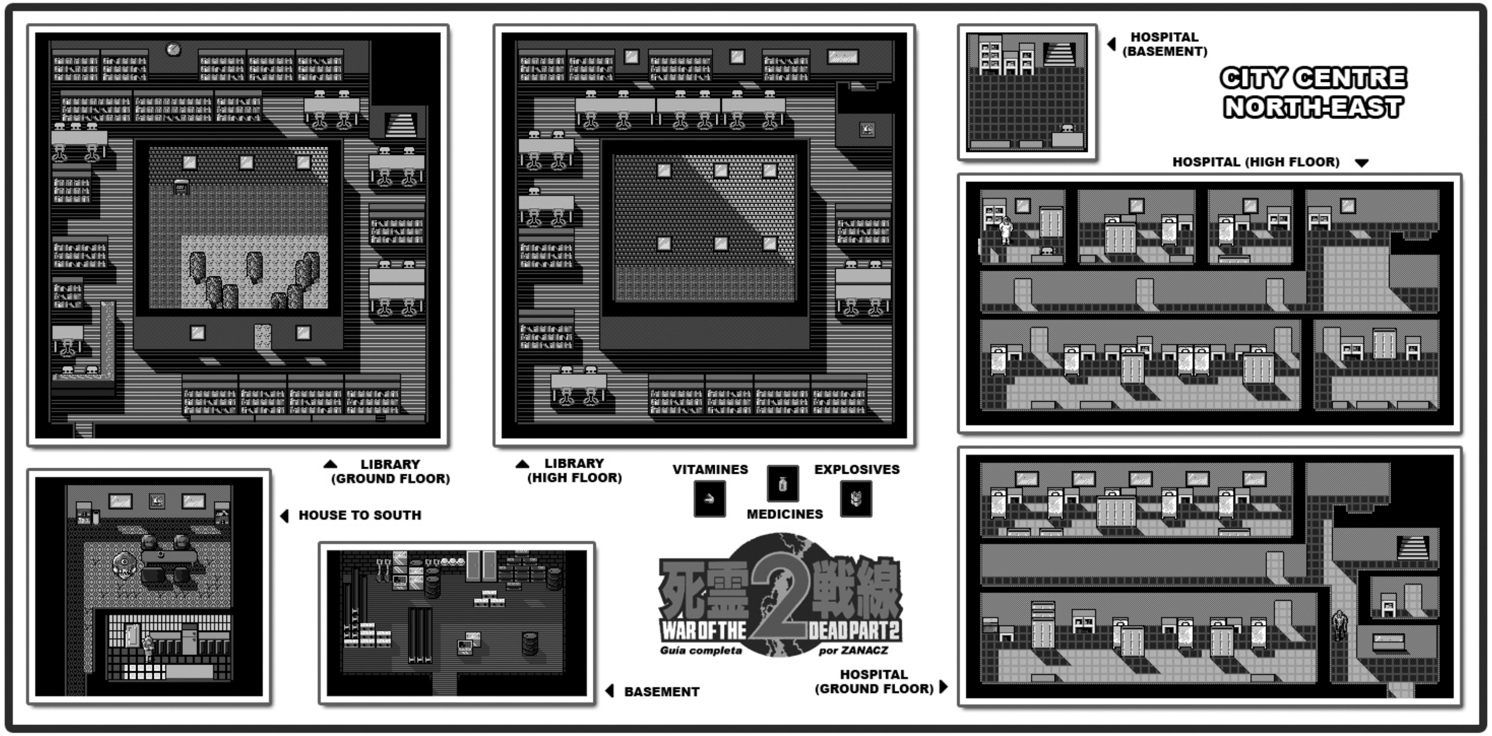
Once everything has finished we think if our only fate is being the gate guardian and if we are related to Cassandra and Clive...

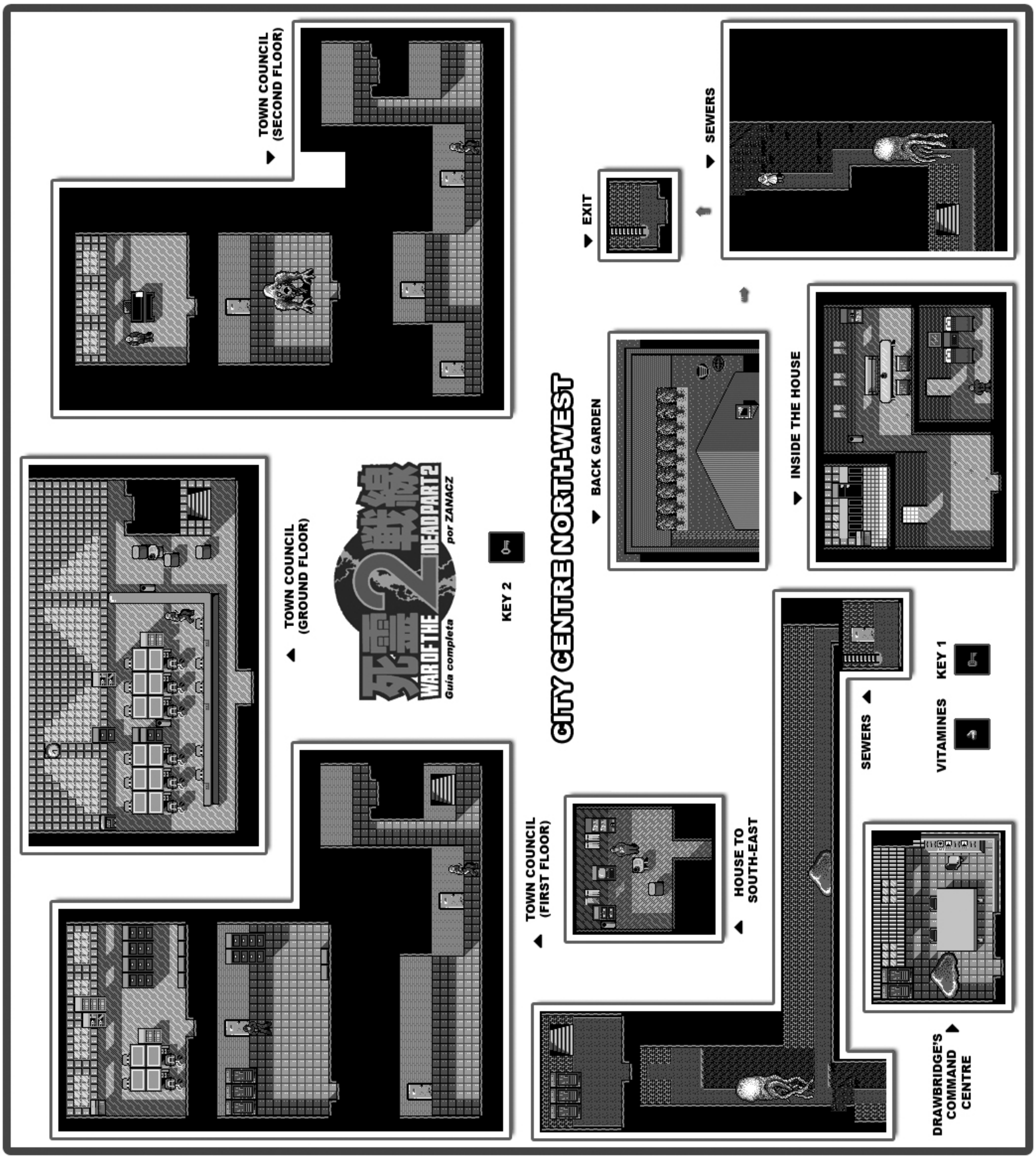
We must be strong and not succumb to temptation. Everything happened has devastated the town but at least the Hades' gate is closed. People from Sun Dorado soon will forget what happened here and will have a better life. Finally this terrible nightmare is over.

Óscar Centelles

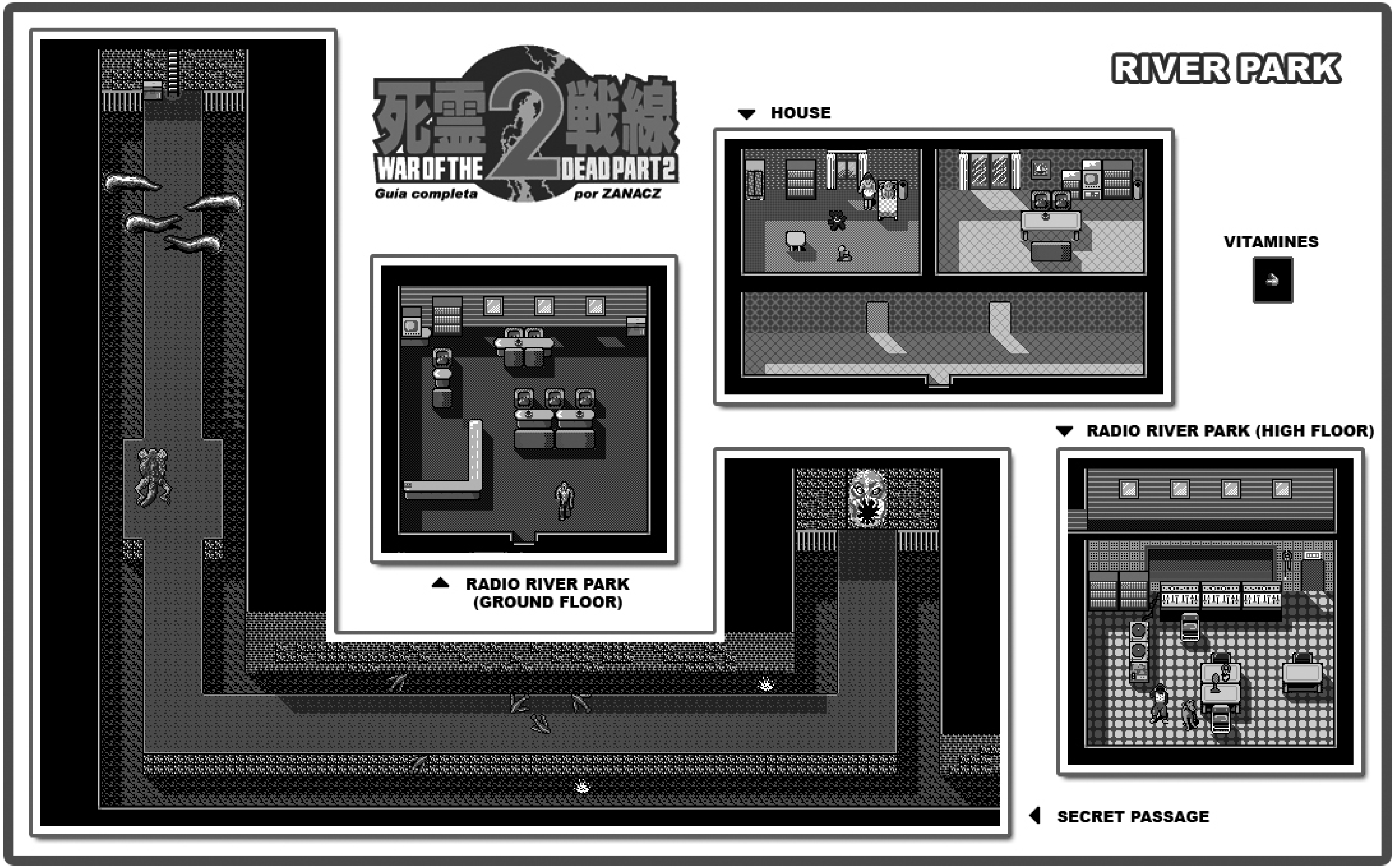

N
CITY CENTRE
CENTRAL NUCLEAR KEEL
MILITAR BASE
死霊戦線 2
WAR OF THE DEAD PART2
Guía completa
por ZANACZ
GENERAL MAP
GOLDEN SUN
SUBURBS
SUNRISE TOWERS
LIBRARY
RIVER PARK
FREIGHT CONTAINER
RECORDING TERMINAL

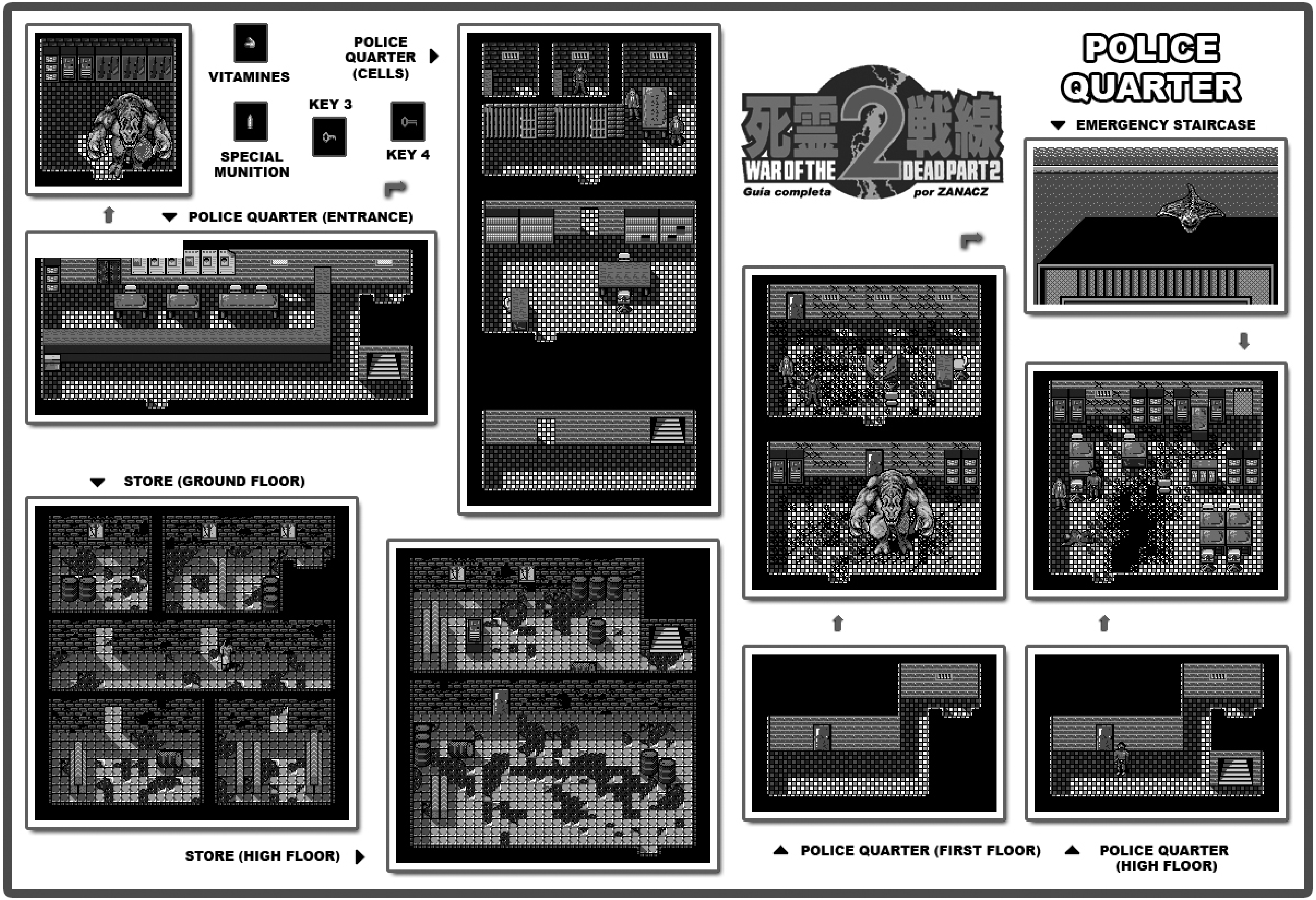

CITY CENTRE
SOUTH-EAST
OPERATIONS CENTRE
STORE'S BACK ROOM
STORE
NORTH BUILDING (GROUND FLOOR)
NORTH BUILDING (HIGH FLOOR)
NORTH BUILDING'S ROOM
VITAMINES
WALKIE-TALKIE
RADIO
死霊戦線 2
WAR OF THE DEAD PART 2
Guía completa
por ZANACZ

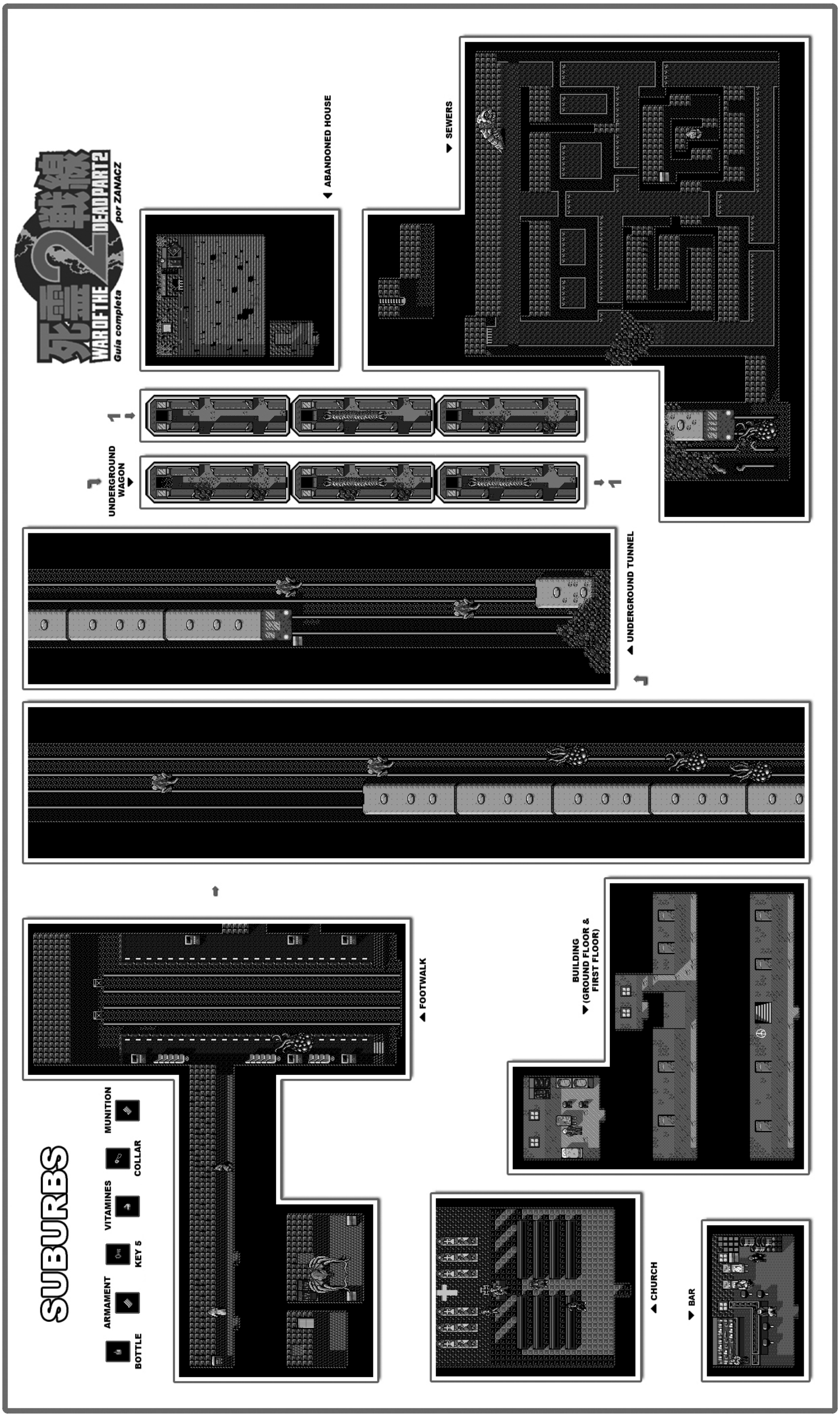

LIBRARY (GROUND FLOOR)
LIBRARY (HIGH FLOOR)
HOSPITAL (BASEMENT)
CITY CENTRE
NORTH-EAST
HOSPITAL (HIGH FLOOR)
HOUSE TO SOUTH
VITAMINES
MEDICINES
EXPLOSIVES
死霊戦線 2
WAR OF THE DEAD PART 2
Guía completa
por ZANACZ
BASEMENT
HOSPITAL (GROUND FLOOR)

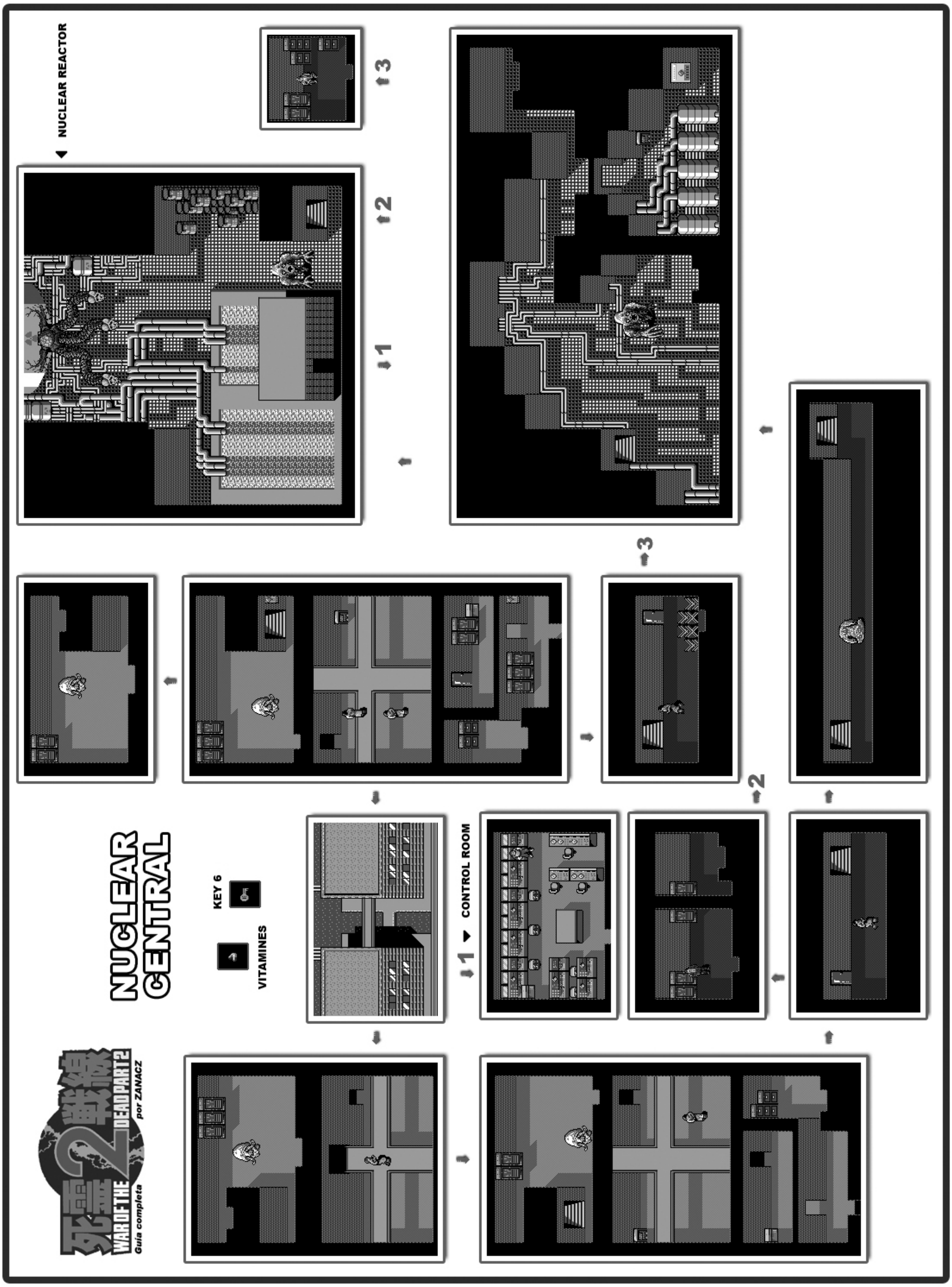


CITY CENTRE NORTH-WEST
WAR OF THE DEAD PART 2
Guía completa
por ZANACZ
TOWN COUNCIL (SECOND FLOOR)
TOWN COUNCIL (GROUND FLOOR)
TOWN COUNCIL (FIRST FLOOR)
KEY 2
EXIT
SEWERS
BACK GARDEN
INSIDE THE HOUSE
HOUSE TO SOUTH-EAST
SEWERS
VITAMINES
KEY 1
DRAWBRIDGE'S COMMAND CENTRE

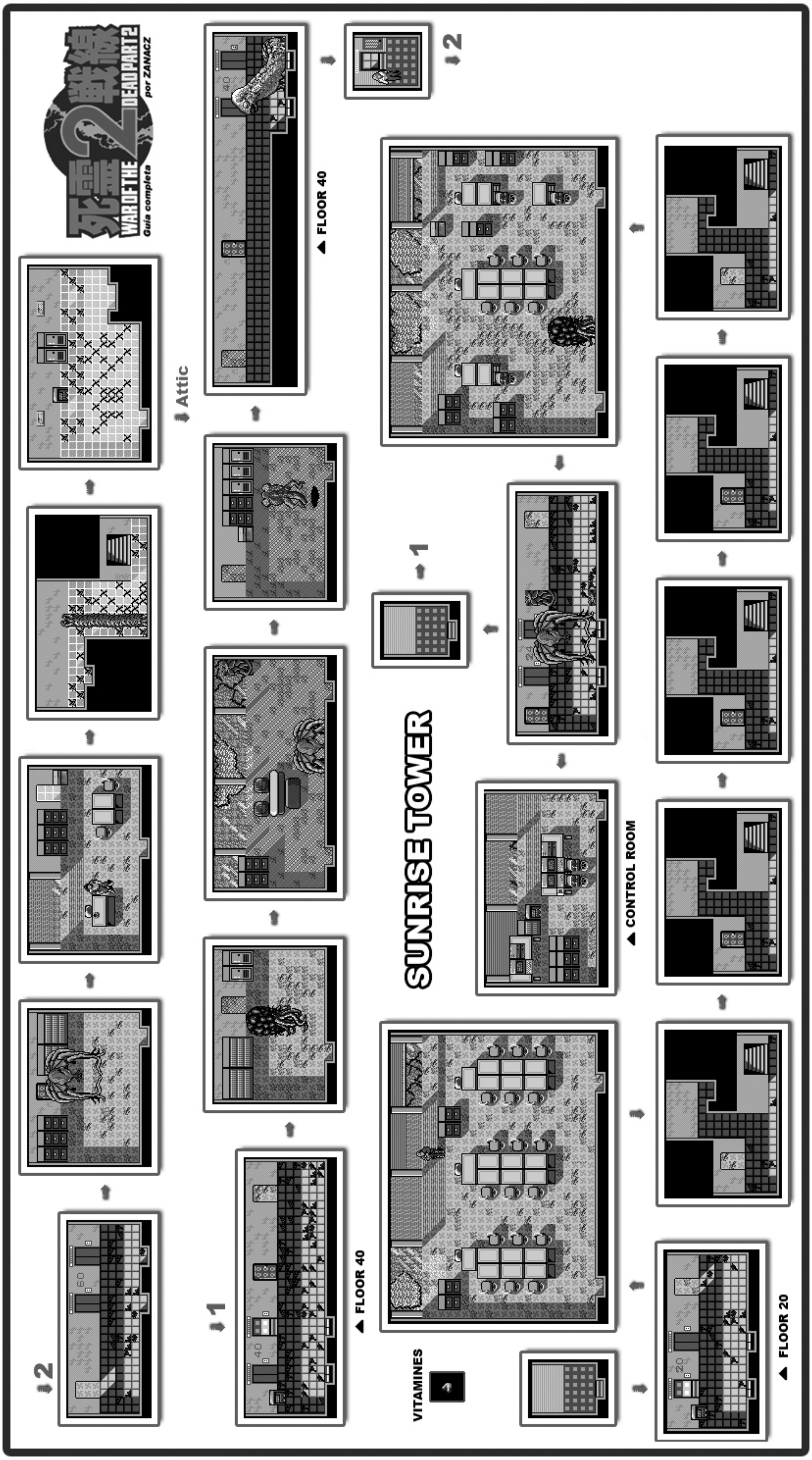

RIVER PARK
死霊戦線 2
WAR OF THE DEAD PART 2
Guía completa
por ZANACZ
HOUSE
VITAMINES
RADIO RIVER PARK
(GROUND FLOOR)
RADIO RIVER PARK (HIGH FLOOR)
SECRET PASSAGE


POLICE QUARTER
死霊戦線2
WAR OF THE DEAD PART 2
Guía completa
por ZANACZ
EMERGENCY STAIRCASE
VITAMINES
SPECIAL MUNITION
KEY 3
KEY 4
POLICE QUARTER (CELLS)
POLICE QUARTER (ENTRANCE)
STORE (GROUND FLOOR)
STORE (HIGH FLOOR)
POLICE QUARTER (FIRST FLOOR)
POLICE QUARTER (HIGH FLOOR)

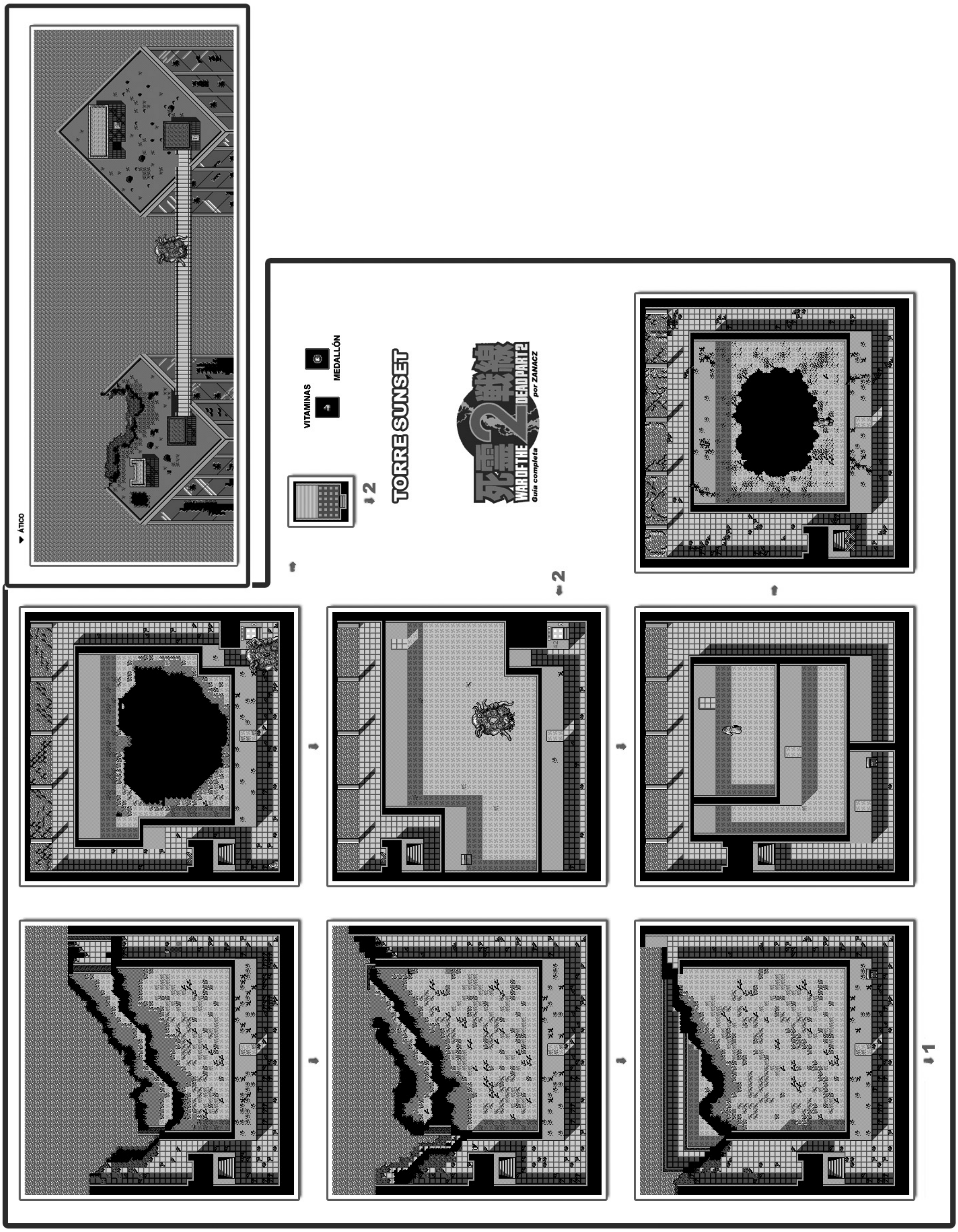

死霊戦線2
WAR OF THE DEAD PART 2
Guía completa por ZANACZ
ABANDONED HOUSE
SEWERS
UNDERGROUND WAGON
UNDERGROUND TUNNEL
SUBURBS
BOTTLE
ARMAMENT
KEY 5
VITAMINES
COLLAR
MUNITION
FOOTWALK
BUILDING (GROUND FLOOR & FIRST FLOOR)
CHURCH
BAR



死霊戦線 2
WAR OF THE DEAD PART 2
Guía completa
por ZANACZ
NUCLEAR CENTRAL
VITAMINES
KEY 6
CONTROL ROOM
NUCLEAR REACTOR
1
2
3



死霊戦線 2
WAR OF THE DEAD PART 2
Guía completa
por ZANACZ
Attic
FLOOR 40
SUNRISE TOWER
CONTROL ROOM
FLOOR 40
FLOOR 20
VITAMINES

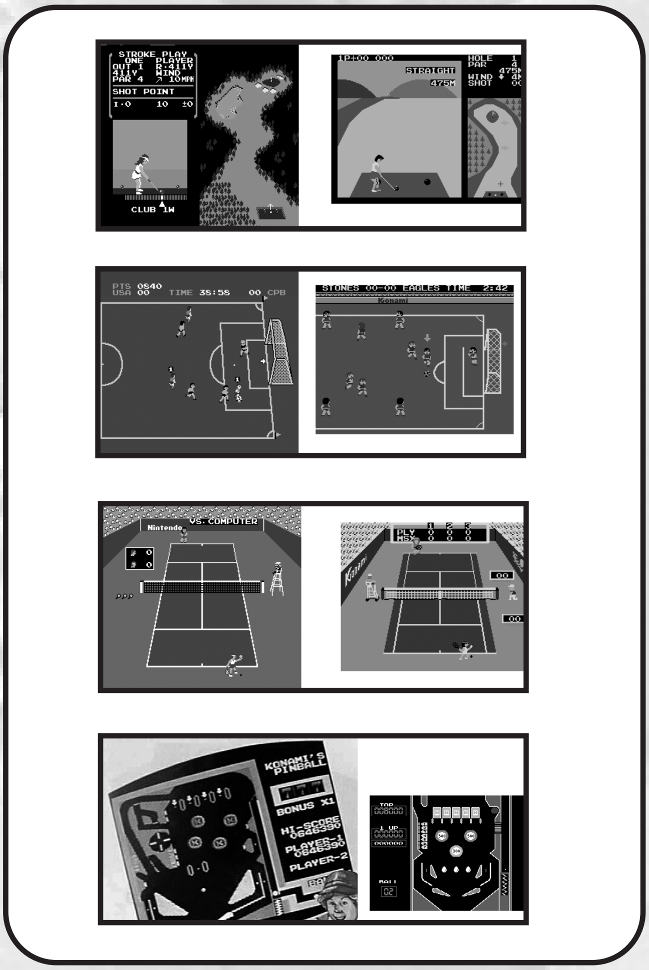

ÁTICO
TORRE SUNSET
VITAMINAS
MEDALLÓN
WAR OF THE DEAD PART2
Guía completa
por ZANACZ
1
2
2

KONAMI, MSX AND "NINTENDO VS." SYSTEM

Is it possible, nowadays, to find interesting information about classic MSX games? How about finding anything which has never said about it? Even if it is difficult to believe, the answer is an emphatic "yes". Let's go to analyze some surprising coincidences.

It was 1984 when Nintendo developed an 8 bits arcade videogames system with an almost identical hardware as its Famicom console (which would be known as "NES" later, in Europe and America). This system, known as "Vs." gave us the opportunity of playing legendary games such as "Vs. Super Mario Bros.", maybe the most famous version of the platform games saga starred by Mario.

Nintendo licensed different games from various companies for this system: Konami, Namco and Atari created games for this board as the same Nintendo did. And it is this last one the one which surprises us.



Nintendo made some videogames of different types for its own "Vs." system. "Vs. Soccer", "Vs. Tennis" or others could be emphasized. But having a look to the pictures of these games we will find something really interesting: they are almost identical to their homonym made by Konami for the MSX system one year later. Some details are different, but the games are essentially the same. Even some sound effects and songs are kept up in both versions.

It is not really clear which was the relationship between these Nintendo titles and the corresponding Konami MSX versions. Perhaps were they sharing the developers team? Or maybe Nintendo just sold or licensed these games so Konami could release them for MSX. In any case, the copyright date in the MSX Konami versions shows it as one year newer than Nintendo versions.

EVen if it couldn't be seen in the snapshots, only some details change between versions: the colors palette, the symmetry of some graphics, the sprites size and some patterns which adapt the game to the peculiarity of each system.

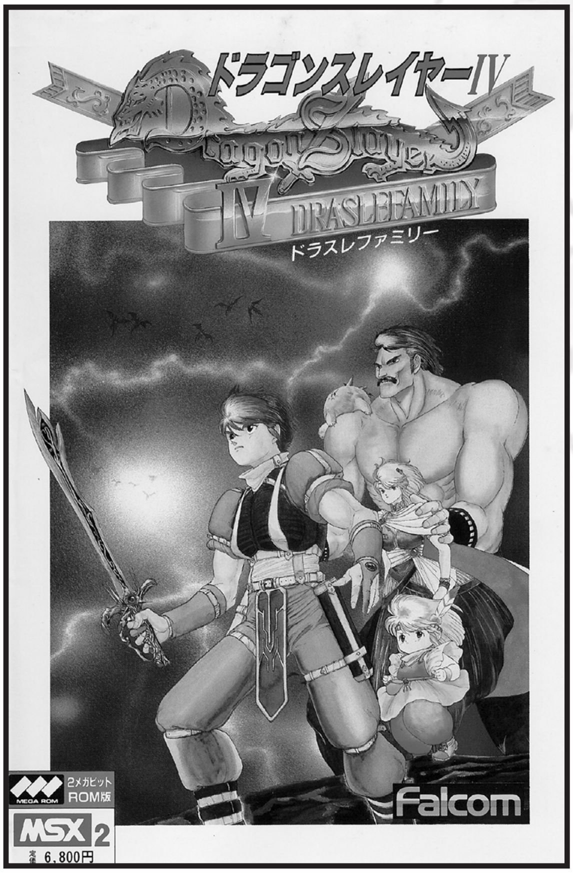
We can go beyond this. If we analyze the MSX Konami games codes list (the famous RC-7XX codes) a significative detail can be seen:

RC-720	Konami's Tennis	1985
RC-721	Sky Jaguar	1984
RC-722	Konami's Pinball (*)	1985
RC-723	Konami's Golf	1985
RC-724	Konami's Baseball	1984

If the RC codes chronological sequence is followed we can notice of how the copyright year is set to 1985 and then to 1984, several times. It makes sense that the games with the copyright year newer than it should be (set to 1985 instead of 1984) are the ones which have their correspondence with the arcade games in "Vs." Nintendo system. Is it just a coincidence? Maybe, but the mistery remains there.

There's something more to be added. The famous "lost" Konami game, "Konami's Pinball". It was even advertised in game catalogues but was never sold. It had supposedly the RC-722 code with the copyright year 1985. As it is predictable (and then everything fits) the game appeared for the Nintendo system. In the picture we can notice the similar design in both games even if real differences exist. The Nintendo version could help us to imagine how could it be for MSX (talking here about addiction and playability, of course).

How to finish...
DRAGON SLAYER IV



We face a wonderful game, although a bit confusing if you do not know certainaspects beforehand about it.

Regarding to versions, we must clarify that it was a NES tittle originally (subti-tled, in its American version, as " The Legacy Of The Wizard ").The MSX1 version is structurally identical (map, items localization,network of ' warps') to the NES version.

MSX2 version, although it is more simi-lar to the graphics of the NES version it suffers of certain structural changes of great importance... and this makes the little information that can be found in Internet about the game, really, quite useless (let's say that the game 'requests to beplayed' in other way)..

So, here it is, a specific help for the second generation double megarom.

I would not forget to say that the MSX1 version has amazing graphics and it is a bit easier... andfurthermore it allows you to use all info (from NES version) found in the net.

Well...The game goal is to get the sword " Dragon-Slayer " and to use it to kill King Dragon ' Dilguios'. To do so, it is necessary to find 4 crowns (each one guarded by a 'boss') before.

You will count on the aid of 5 characters with different characteristicsand with several special objects that let you (or will make easier) to achieve it.

The access to the different zones that compose the vast map is determined, in fact, by those special characteristics and also by the use of concrete items. When you explore the full game it becomes evident that the structure was thought to play in a sequential way: Next you could read which i consider as the shorter and convenient one to enjoy (and to finish) the game.

I forgot... Controls are: <cursors> (directions), <SHIFT>(jump), <Z> (fire), <ENTER> (items selection).

And, about de keys: Select the grandma ('Geera Worzen') to takethem.

In order to add any, select the grandfa-ther (' DawelWorzen ').

And if you do not have kana keys, there are adapted rom versions forEuropean keyboards. Finish the excuses! Let's play...

FIRST CROWN (Pochi Versus Taratunes).

Select " Pochi " (Monster). The enemies do not reduce his 'life', therefore he is ideal for a first contact with the game.Before leaving, it is offered to you the possibility of equip items,but as you do not have any, you simply leave.From the house, go to lower left and go down the stairs.

You are at the entrance of a great dungeon that conforms the bulk ofthe game.

From here, there are 2 basic ways: go towards the right during acertain number of screens (a quite short mapping) or to go downand arrive, after few screens (down, left, down, right, down), tothe departure point of the 4 great routes... the place where the dragon is.

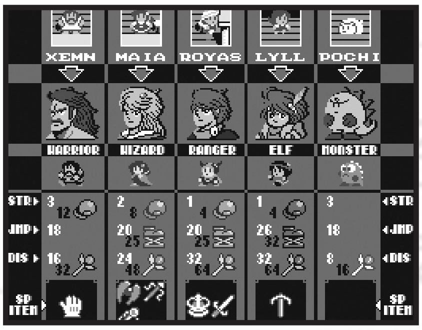
Go where the dragon is. In your way shoot to some enemies to getkeys (try not to waste magic) and open a coffer that contains a'warp-ball' (it is useful to return to the surface).

From dragon, to the right and go down the stairs.

Keep going to the right, you will find a dead end. There you will get a coffer that contains a 'potion'(it is useful to recharge magic) and a store. It is impor-tant toremember this zone, because going down the stairs next to this storeyou will arrive at a screen where there is a very important ' warp' (the image of a silhouette girl). These warps only can be used when you getthe crowns: we will use them later, at the half and the end of the game.

Return to the left. In the same screen where you entered from there is a stairs that go lower.

Then go down and continue to the left.You enter a zone with many stairs. You have to find the way to go downto the next area using a stairs.



When yo go down, you enter a zone of white blocks. Go to the right, use the slow flying enemies to reach the upper part of the screen(go upon them and jump) and go trough a 'false block'.During the game it is very common to find these false blocks that are destroyed by contact.Open the coffer: you will find a valuable item, 'knuckles' (theyquadruplicate your attack power). Continue towards the right and go down the stairs at the end of this zone.

Again a lot of stairs (this time green blocks instead of the previous brown bricks).It is necessary to find this zone exit, to the right.

Once you have left out, first that you could see is an ('INN'). If youneed it, enter and spend 10G to refill your life and magic.You can also equip items, although it is not necessary so far.There is also a store in this zone.And the most important thing: a coffer (that contains a great bag of 'gold') in the upper part of the screen, close to the ceiling. After taking the coffer, if you jump, you will open a secret passage (false ceiling-block) to the zone where the first crown is hidden.

BUT BEFORE, it is necessary to explore a bit more (we are going tolook for another valuable item hidden near here, in a coffer).Go to the right and go down using the stairs located at the end.

Go to the left end, go down... and to the right end again (it is not necessary to enter where then inn and the shop are).Go down the stairs.

Take care of the spikes in this zone. There is a trick not tolose so much life, and it consists of keeping <UP> pressed when you advance to the left or to the right.

Hidden between the spikes, you will find ' pick' (item that can beonly used by ' Lyll', and that it will be fundamental to get the second crown,it is used to break blocks).

You can already return to the secret passage screen. Go for the crown.

Go up through the hole resulting after breaking the false ceiling.

Again many stairs. You have to get to the right end of the area(investigate well, there are a few false block-brick which are broken whenyou touch them). Also try(as usual) to take some keys.You will need them.

You will see, to the right, an inn and one shop. Over the store, again false-ceiling and a passage, now yes, go to the screen where the cofferthat hides the crown is (a place full filled with false block-brick).The coffer that interests to you is placed just upon the inn (by the wayit will be a good moment to recharge life and magic).

Open the coffer, take the crown... and defeat 'Taratunes'. It is easy: Pochi is strong and Taratunes will be history with a few hits (watch out , this big beast reduces life to you, unlike the rest of the enemies of the game)...

Once obtained the crown, you are teletransported to the surface.Go home: but before continue, take the key.

SECOND CROWN (Lyll Versus Erebone).

Select ' Lyll' (Elf).And do not forget to equip her with the items 'pick' and 'knuckles' before leaving.Make sure to select knuckles to kill the enemies with less blows (and watch out the life marker, the only invulnerable character is Pochi). Also keep an eye on the magic counter: to shoot with the selected knuckles duplicates the magic spent.

Before going to search the crown, we are going to locate a veryimportant item (the 'boots of spikes', which let you squashenemies jumping on them and using no magic at all).

Go where the dragon is.

To the left and go up the stairs (until you cannot get higher).Now, go to the left.

You will arrive at a zone where there are a lot of white blocks (you could break then with the pick). From the inn towards the left (always in contact with the ceiling) search for a false ceiling-block in the corridor where the octopus is. Jump and get in.

Yo will surely recognize this screen: you go through this one whenever you go towards the dragon. Open the coffer: you have already got the boots of spikes. Return to the inn and rest...Before leaving, equip yourself with the boots. From now, you will spend little magic so the game will be less hard.

Back to the departure point (the dragon).To the right. It is necessary to go up (by the stairs of theright: the one of the left is used to return to the surface... remember this to not to spend warp-balls).

There is a warp-ball in a coffer in this zone. Look for it beforegoing to the right.



Using the pick, to the right, you will arrive to the next zone, with " vegetable " graphic motif.

There is no choice but go down (until the bottom, using the pick when it is necessary). At the bottom you will find a 'sceptre' (it duplicates the length of

the firing) hidden in a coffer.Now it is necessary to go up to the same screen where everything begun, but stand in its right side (you can take the coffer, that contains a potion to recharge magic).

Jump to the right and walk towards the next screen.Drop down by the enormous precipice.At the bottom, a shop: buy the ' boots of jump' (95G). Wear them by entering an inn and go up again (using the boot of jump and the pick tip when necessary).... yes, back again to the first screen of this zone.

Thanks to the boots of jump and from that first screen, you could access (on the top and to the right) to the zone where the DragonSlayer sword is (no, you cannot take it yet).From there, go up and to the left... so you will arrived to a new zone of white blocks (the enemies, lovely girls-cat).

Continue to the left, until arriving at a block zone in pink tones.Remind this place. It will be important at the end of the game.

Always with care, jump to the left end... right to get another screen that will be familiar to you: you see a coffer and a still lion (You always go through here whenever you go towards the dragon).That coffer contains the second crown. Before taking it, enter the inn and equip yourself before leaving: the boots of jump and the knuckles.

Now open the coffer (you should touch it by the left side, since the right side will be blocked by an invisible block) and attack to ' Erebone'. The great jump of Lyll will make it easy.

Once obtained the second crown, you will be teletransported to the surface.(again a good moment to take the key).

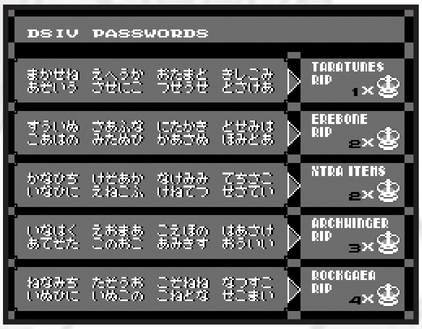
" INTERLUDE ": Harvest of special Items.

Before leaving to search the third crown, it is necessary to obtain certain items that would be necessary later.

Selects 'Royas' (Ranger). Equip him with one of the crowns, the boots of jump and the boots of spikes.

From the beginning of the mapping, we are finally going to see what is found in that short mapping to the right of the entrance... It is important, while you are walking towards the right, that you entertain yourself squashing the greater possible number of enemies with the boots of spikes. So, you will refill you gold counter and the keys one too.

You must get to the right end of the zone (you will have to look for false blocks false and break them by contact, and sometimes you will have to use the jump boots).



Go down the stairs and take that coffer: you obtain 'glove' (a item that can be used only by the warrior 'Xemn' during the search of the fourth crown, and that is used to move blocks).

Return to the departure point, collecting gold and keys.Full the gold marker to the maximum (you are going to need 95G in a stage).

Go where the dragon is.

From here, go towards the left or towards the right, it is the same. Stand under any of the 4 warps located in this zone... equip yourself with the crown and press <UP>.

You would be teletransported to a a very special shop. Enter and buy a 'shield', the only one founded in all the game, and that will let you faced the bosses without their firings making harm to you. In this store elixirs are also sold (which recharges you complete life and revive you when dying) at a very good price (10G).

To leave this place, jump: the store nameplate will transform into a warp.Again use a crown and <UP>. You appear where dragon is.

(I must clarify that all the network of 'warps' does not activate whenthe first crown is taken. It is necessary to have 2 crowns at least to activate the 'warps' that will take you to the store of theshield... and sure, up to 4 crowns - maximum- to activate them all andto be able to get access to the legendary hidden sword)

Return to the house. In order to do it, go to the right and take the upper left stairs... etc. You could use warp-ball, but is to collect gold and keys on the way to (using the boots of spikes).

At the house, select Lyll. Equip her with the boots of jump, the boots of spikes and the pick. We are going for another important item (the last one before continuing with the search of the crowns).

Again, go towards the dragon. Collect a lot of gold (you will need 95G soon). From the dragon, go again to the right and up (upper right stairs). In the second screen, go to the right, go up through the hole in the ceiling, and to the right. Using the boots of jump and the pick, go towards the store that there is on the right: Buy 'wings' (95G), an item that could be only used by the wizard 'Maia' in the third crown search.

And return home... although it is advisable, before returning, to dedicate some minutes, in that handy zone at the right of the entrance, to (thanks to the boots of spikes) collect as much gold and keys as possible.In the search of the third crown will be necessary to take the gold counter to the maximum and , at least, the third part of the key counter full.We are, at this moment, approximated at half of the game.(it would be usefully to take a key before continue)

THIRD CROWN (Maia Versus Archwinger).

Select 'Maia' (Wizard). Equip her with the wings, the knuckles and the boots

of jump. It is a pity that she cannot use the boots of spikes (be aware now: used to the boots, now you will have to use the knuckles and keep an eye to the life and magic markers).

Towards the dragon, to the left, go down by the stairs.Free fall and you will see a shop where you can buy the shield.Go down by the stairs and then straight on towards the right and then another a big stairs down.

You will arrive to an orange block zone.Go to the left. Look for false blocks to avoid fighting to the spikes and enemies and to save keys as a consequence.

Always towards the left, once passed the screen of the castle, you will arriveat a zone that let you to choose 3 ways: Up, centre, down. Using the central way you could access a coffer that contains a warp-ball.In order to continue the search of the crown, the way is DOWN. Go till the stairs. Then go down.

Zone of yellow blocks. To the right there is a store: spend 90G in 'cross-bow', an item that could only be used by Maia and it is used to pushthe same blocks that Lyll can break with the pick and which Xemn could move with the glove.In the right end there is an inn and under it there is coffer that contains a potion to recharge magic. Rests in the inn and equip with the bow.

Return to the zone left end: the fourth block of the ground by the left is false... pressing <DOWN> break it and get to a new zone (with a pretty blue colour background).

To the right end, and then go up.

In this new zone, in the left end there are stairs that lead to the inn you have seen recently (by the way it becomes a shop if you jump over the sign).But what it interests to us is to go up and towards the right, until find a hollow in the ground which you drop through.

You are in green-blue zone.Now it is time to go through a loads of false blocks to leave by the right bottom part of the screen. Once outside, in the right end of the zone, you will find a coffer with a great gold bag (there is also a shop).Go up.

Now, go to the right. It is necessary to pass a long line ofdoors. You will sped many keys (using the arc and looking for falseblocks you could save some).

You arrive to a new zone with blue blocks and girl-cats.Go to the stairs, to go down to the next zone (blue back-ground and brown rocks).

Again to the right, pass near an inn (convertible to shop if you jump over the sign). If have not equipped the wings, you will have to enter the inn, to rest and to equip them: it is necessary to make use of them to continue.Get to the right, until a coffer that contains 20 keys. Go up.

Go to the left, using some keys.Now, it is time to break some blocks and to go up the stairs, getting to a new zone (of brown blocks).

Go to le right (take care of the spikes), go up again... and to the left. Finally you will see a store surrounded by a spiral of blocks. Get there (using the wings) and buy (90G) the 'magical key', an item that can be only used by Maia which allows to open the doors using magic instead of keys (thanks, because you surely have a few left).

Continue towards the left and go up: zone of blue and green bricks, with many spikes again. It is necessary to get to go up.In the left end of the zone there is a coffer that hides a ring (it will keep you invulnerable a time).In the right end there is an inn: enter, rest and equip yourself with the magical key before leaving (the wings and the arc as well).Go up.

Then to the left and go down again (stairs).Using first the arc to push the brown block and then the magical key to open all the doors, go towards the right (take care of the "invisible" enemies).

We are already close to the crown...

You see an inn (do not enter yet, unless your live or magic level are deadly low).Go to the right, go down and use the magical key to open all the doors to the left. Continue until you could see the coffer (no, do not open it yet!).

Now, return to the inn (take always care of the "invisible " enemies).Enter, rest and equip: wings, shield and a elixir.

Well now, go for the coffer. Open it and face ' Archwinger'. Thanks to the shield his firings wont be a problem. Taken care of his physical blows (use the elixir if you have not much life left).

Once defeated the beast, we return home.It has been a long search, do not forget to take the key...

FOURTH CROWN (Xemn Versus Rockgaea).

Select 'Xemn' (Warrior). Equip him with the boots of spikes and the glove.

Go where the dragon is, and go to the left. Go up by the stairs.At the top, take that coffer (it contains a big bag full of gold). Now, to the right.

You are in the same place we visited before with Lyll to take the boots of spikes.

Now you have to learn to use the ' glove', an item that allows you to move certain blocks.

It is necessary to take control of its operation (in the beginning it could seem terribly confusing, but in fact it is quite easy). Basically, it consists on touching blocks while <SHIFT> +<direction> pressed. This way the block will move to that direction (if any obstacle prevents it, of course).

For certain movements it is not neces-sary to keep pressing the <direction> keys: only maintaining pressed <SHIFT>, touch it and it will move to the last direction you moved to.this will be very useful to you: for example, to move a block located over you to the left you have to stand below (coming from the right, so, the last key pressed will be <left>). Next, a mere jump

while keeping pressed the jump key during the contact with the block, so it will move to the left.



And another example: in later screens you will have to move complete columns of blocks to the right. Nothing so easy: jump on the first block, press <right> in half of jump (and release it)... after fall on the block (keeping <shift> pressed) they will move to the right. If you maintain the key pressed, all the blocks of the column will move to the right in a easy and fast way (one after another as you move them away and falling over the next one).You also will have to go through some precipices travelling on a block at the same time you move it: To do so, it will be enough to stand over de block edge (in the wished direction) and jump, maintaining pressed <SHIFT> while falling. So, the block will move to that direction and you will keep yourself on it. Repeat any time as required.

You even will be able to move blocks in diagonal in half of the jump after a bit of practice...

Anyway, if you have learned to use the glove you will been able to advance to the left (until the lower left end), where there is a store. Close to it, there is a false ground-block. Break it and drop down.

Now, you are in a zone of bricks oranges and blue background.You have to go towards the right, using of the glove.In the right end of the zone, down, there is a false ground-block again. Break it and go down.

You will enter a zone of great falls. Take care.Always over the upper zone, advance towards the left (attention, there are some false ground-blocks). You must drop through a hole (take advantage to take the content of the coffer, a magic potion) and return to go up (stairs) to continue towards the left.

You will arrive to a screen with blue blocks and many spikes.Use the glove to move the blocks, you must go down by the hollow located down to the left.

New zone and massive use of glove together a certain amount of 'puzzle'(a lot of hours dedicated to ' Eggerland Mystery' finally give their profits ;D) skills required.

The objective is to get to the upper end of the zone, to break some false blocks and to drop down through the false ground (lower right end).

More work for the glove, now advance to the left.Enter the free space where the inn and the store are. Jump in the store and take the coffer: You will obtain an 'armour'. Enter the inn, rest and wear the armour: the enemies will die when you touch them (watch out, it constantly spends much magic while you are wearing it... use it only when in narrow passages when you could not jump using the boots of spikes).

Go to the left and go down the stairs.

Gray-blue zone. It is necessary to go to the right end of the zone and to go down the stairs.

This way you will arrive at a zone where you should use (and abuse) of the glove and, perhaps, a bit of the armour. Read again the paragraph in which i explained how to move hole columns of blocks using the glove (you will need it).

Anyway, the objective of this zone is to arrive at the lower left end (where there is a store and an inn). Go down by the left stairs.

NOW, LOOK OUT: you have to go towards the right, but trying to stand at the high part of the screen, using the gloves and the blocks. Try not to fall to the ground, because you will have to repeat a good part of the map. At the right end of the zone, go down the stairs.

(note: if you fall to the ground, you can try to return back to the block from which you have fallen using the enemies as trampoline... but this requires patience and you could spend too much life; it is easier to repeat part of the route).

You will reach a zone with spikes. It is necessary to get to the exit in the lower right, whereby you will take a detour (left, go down, right).... watch out the false blocks and the use of the glove.

FINALLY we approach the crown.

Go to the right, go up the stairs (you can take that coffer, it contains an elixir) and go to the left (it is necessary to enter the hole located where the inn is).

Go up by stairs to the top end. This zone must be familiar: is where the search of Maia began.

Investigate the false blocks, advancing towards the right and, take care, trying not to fall down (you will have to start again).Continue in such way until arrive to the inn. Enter, rest and equip (at least): shield and magic potion.

To the right, now look for a false ground-block and let fall...

Well: THAT is the coffer that contains the fourth crown.To open it, you will have to jump when an enemy situates to its right(" Catch him " when in half of the jump and advance to the left till touch the coffer).

The fight against 'Rockgaea' is difficult. The shield makes you invulnerable to its firings, but its contact reduces your energy a lot. For that reason, instead of equipping with an elixir and throw to the battle with few possibilities, it is better to be patience and shoot him from a safe position (from above, shooting to him in a descendent diago-nal). You will need enough magic (hence to equip you with a magic potion, just in case you loose the magic points).

Once defeated Rockgaea and obtained the fourth and last crown, go home.

Do not forget the key. It might be the last one that you will use. (Moreover it has been a bit hard to obtain, with so much work using the glove and anything else, right?)

FINAL BATTLE (Royas VERSUS Dilguios, Dragon King).

The last section of the game lie on the search of the DragonSlayer sword.In order to, it is obligatory to use ' Royas' (Ranger), the only one that can use the crowns to teletransport him using the network of 'warps'.

(note: in the MSX2 version, this network is wider that in NES and MSX1 versions... furthermore the different 'warps' are interconnected in other way).

It will be obligatory to use Royas in the final confrontation, because he is the only character that is able to use the legendary sword.

Fortunately, in the search of the sword we will be able to use the boots of spikes, the armour and the boots of jump (Royas is a quite weak character in general).

So equip him: crown, boots of jump and boots of spikes (or armour).

Go where the dragon is.

Now, go to the right and go down the stairs. This is the zone where the search of Pochi began.

Go straight on to the right (until the end, then you will see a shop- close to the place you took, do you remember?, a magic potion contained in a coffer), and then go down the stairs: this is the ' warp' where route starts. Select the crown and press <UP>.

You will appear over the sword, but you cannot even take it. Go to the right, jump and fall until the bottom.

Now, go to the left (using then boots of jump and sometimes leaning on some enemies), until reach the next ' warp'(located over a pile of yellow blocks).

Crown + <UP> (= "warp!").

You will recognize this zone because it is quite near the third boss (crowns obtained by Maia).

Advance towards the left using some keys.warp!

Jump towards the right with care. Open the door, jump using the boots...warp!

Gray zone: Go down until the end.Now, a little to the right and...warp! (be aware: now it is necessary to maintain pressed, after warp, the <LEFT> key, only a bit, to fall over a column).

If you have fallen down, you should start again (yes, everything from the beginning).Otherwise, if you are over the pink column, jump with care to the left.(we saw already saw this pink zone while looking for the second crown with Lyll)warp!



Well, now you can already take the DragonSlayer sword.

IMPORTANT: from the moment that you take the sword, the keys that you get from the grandmother Geera would be useless. In other words, to see the end of the game it is necessary to make necessarily the search of the sword and to face the dragon (everything in one go, there is no remedy).

Use the 'warp' over the sword.

Now advance towards the right (ignore that ' warp' that you see now in the new screen you will get to) Go up, use 4 keys...and, now yes, take that other ' warp' that you will see.It will take you to an inn. Enter it, rest and equip you with a warp-ballGo out, use it. Go home!

I insist, do not care taking any key.

Select again to Royas and equip him with the boots of spikes (or armour) and the sword.

Go where the dragon is.You can rest in the inn that there is over him, and equip him with the sword now if you did equip him with it before.Go down, situate under it... and finally the final confrontation against Dilguios, King Dragon, will be unleash.

You will only need a bit of ability and patience: a burst of shootsand jumping to the left will reduce its life and will avoid its fire breath.When you both get to the left of the screen, Dilguios will retire flying and commence again. Ditto, a bit of ability and patience.

A BREAK: in MSX1 version then dragon must be defeated using a different-way...

After each " burst ", you have to go back *completely* to the left end of the screen: Only in this way the beast will jump towards the right.Otherwise , it would advance until corner (to the left)...scorching you without remedy.So it necessary more patience than in MSX2 version... but since the game is easier in the first generation version, it is good to the dragon to be a little bit more difficult... isn't it?

End of the dragon, End of the game.

Even during the epilogue you can enjoy a pair of wonderful songs, at the same level that the rest of the soundtrack. In the credits, there is a 2 words explanation (YUZO KOSHIRO) to the show of incredible songs that we can listen throughout the game.

I hope you have enjoyed this so much as me to play DragonSlayerIV.

Sut. sutchan@wanadoo.es

Translator’s note: No dragon was harmed during this translation, but the English language.

MSX TIPS & TRICKS

Collaboration:

Manuel Pazos

ALESTE

Musical test



If you want listen to the 19 melodies and some sound effects of this game, just push the spacebar while keeping pressed the “T” key when Compile logo appears or during the intro. To select melodies we use the right and left cursors and the spacebar.

ALESTE 外伝

To listen to the 30 songs and sounds of this game we have to push 24 consecutive times any of the four cursor keys.



Sound test

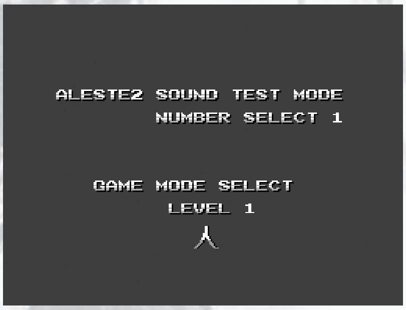
We can select between PSG and FM inside the sound menu using the up and down cursors.
To leave we must press **“F1”** key.

ALESTE 2

Sound test and difficulty level



To listen to the 17 melodies and the 7 digitized voices of the game and also to select between the three difficult levels of the game we have to keep pressed the key **“SELECT”** while the game is booting from disc A or B. Furthermore, if we keep the **“STOP”** key pressed we’ll force the music to be played through PSG. Melodies are selected using the right and left cursor keys and we listen to them pressing the **“SHIFT”** key. We select the difficulty level using up and down cursor keys. To exit the menu we have to select the song number **“0”**.



Stage selection

To select the stage where we want to start to play we have to insert last disc of the game; once you are in weapon selection menu you must keep pressed the **“SELECT”** key while we change the level with up and down cursors.



Airship speed

Pressing **“STOP”** we halt the action and we can select the speed of our airship. There are 10 levels of speed and we can select them with the left and right cursor keys.
To continue with the game we must press **“STOP”** again.



Extra sequence

When the enemy of the fourth level is defeated the game will ask us to insert B disc to continue. But if we insert the first disc of the game we can see an extra sequence.



αROID

Completing a level

To step over the next level we have to press **"F1"**, **"F2"**, **"STOP"** and **"SELECT" at the same time,** during the game. We can use this trick whenever we want.



Getting weapons

To get a better shooting we have to press **"SHIFT"** and **"F3" at the same time**.

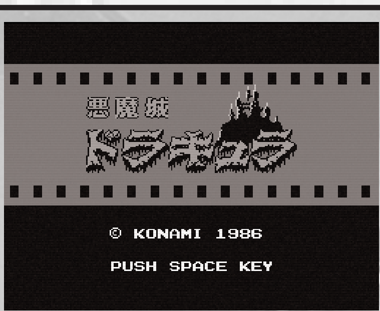
If we repeat this trick we ill change our weapon which will shoot 2, 5, or 7 bullets at the same time and in several directions together with the normal shoot.

Increasing lives

Press **"F1"** and **"CODE"** at the same time during the game. Every time we press it our lives will be increased in one unity. It's possible too keep both keys pressed and quickly increase its value till arrive to 99 lives.



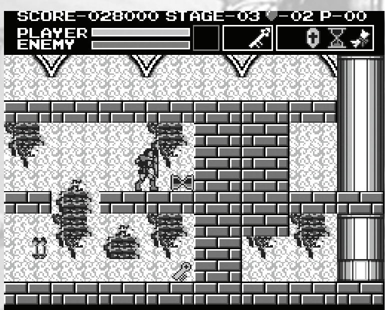
悪魔城ドラキュラ



Hourglass

We can get a hourglass which ilets us to freeze the game even more time. To get this we have to hit it with out whip before taking it; the hourglass will lie down and we will get it then.

To use the hourglass there is needed to press the up cursor (jump) and quickly the down cursor key.

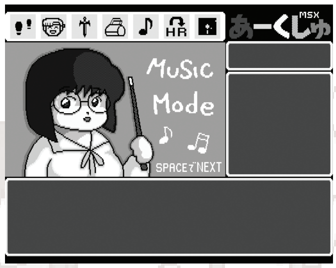


Arch - Sound test

あーくしゅ

To access to the secret menu we have to press the **"ESC"** key at the title screen.

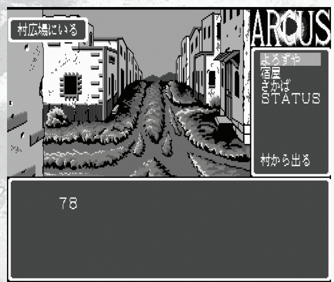




Once inside the sound menu we will be able to listen to different songs pressing spacebar.

Sound test

Press **"F5"** and **"SELECT"** at the same time while the game starts.

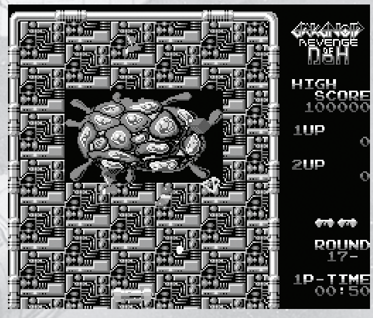




We can listen up to 31 songs if we use the up and down cursor keys. It is difficult to select the songs because the menu sensitivity.



It is possible to advance till 17th level where we´ll find the second enemy if we press **"ESC"** or **"TAB"** during the game.





Immunity

If we put the name **"CREEP"** in the hi-score table we will receive immunity against the enemies.

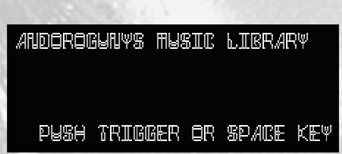


Continue

To continue the game we have to press **"F2"** when the **"Game Over"** message appears. We can continue but we will have 3 lives instead of the normal 5 ones.

Sound Test

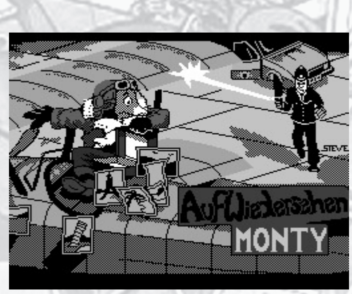
To listen to the 13 songs of this game we must press **"F5"** when this title appears. With spacebar we can listen to the different songs.





Infinite lives

To get infinite lives we have to stop the game with the **"STOP"** key and then press **"C"**, **"O"**, **"S"**, **"M"**, **"I"** and **"C"** consecutively. At the end we come back to the game pressing **"STOP"**.



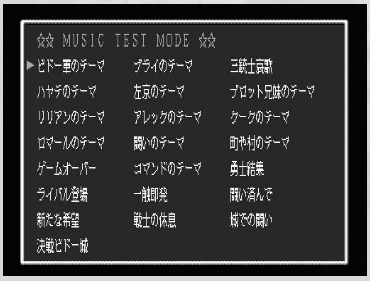
Immunity

To get immunity against the enemies and infinite lives we have to execute this code in Basic before loading the game: **KEY 1,"MONTY"**. Later, once the game is started we must press **"F1"** and take the shotgun which is at the first stage.



BURAI





Sound test

To listen to the songs we have to insert the disc *"E"* and wait till a message appears. They ask us to insert the disc *"B"*; So we do it and the sound test will appear .

There are 22 songs that we can select with up, down, left and right cursor kerys.To play the selected song we use the spacebar.

If we push **"ESC"** key while a song is being played, this will be finished with a fadeout effect.

SUPER LAYDOCK



Secret demo

There is a hidden demo in Super Laydock; in order to watch it we must start a (NEW GAME) and insert the word **"LAYDOCK"** as a keyword (*WARDATA INPUT*).

To confirm the keyword you must press the **"RETURN"** key.



CHORO Q



Screen selection

To select the stage where we want to start we press **"C"** and **"Q"** and the number of the desired stage (0 to 8) **at the same time**.

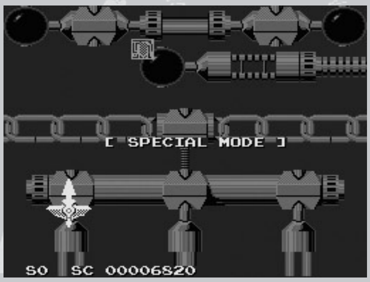
Without releasing the key combination we will start the game pressing the spacebar. If everything was correct we will start from the selected stage.

DARWIN 4078 TM

Infinite lives

To obtain infinite lives first we must stop the game with **"ESC"** key. Then we will press **"M"**, **"T"** and **"K"** keys at the same time. Now a new message will appear to tell us that we accessed the special mode. Finally we'll go back to the game pressing **"ESC"**.

If we repeat the trick we'll return to normal mode of game.



DIX



Keywords

To insert a keyword you must select the option *PASSWORD*.

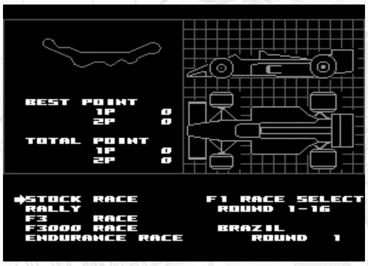
	16 BUCUZUU
2 BNW4HUU	17 Z5YSXUU
3 NBW8SZU	18 ZGCYPUU
4 NYEXRUU	19 NTWSXZU
5 N148XUU	20 N6ETUTU
6 ZC4RHUU	21 NH4UV2U
7 BX6NRUU	22 ZS4HPNU
8 N26YUZU	23 Z7UT8TU
9 BDIUSUU	24 NI6SUZU
10 ZWSRPZU	25 ZR62YNU
11 N38SXUU	26 N8IZSUU
12 NEQPXUU	27 NJ8XVUU
13 NVKYTZU	28 ZQ8SZUU
14 ZUKURZU	29 Z9QNTZU
15 ZFAUZNU	30 BKN22UU



To insert the keys we select **COMMAND** and then the option **INPUT PASSWORD**.

MAXPOINT

We can run in all available circuits.



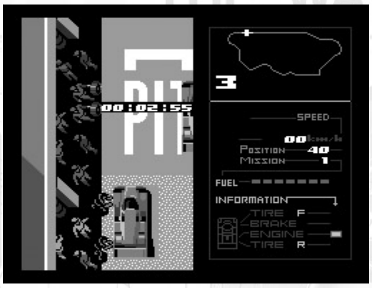
ESCON and ESCOFF

With this two keys we'll enable and disable the possibility of dropping out of the race with the **"F5"** key.



HYPEROFF

Mechanics repair our car faster.



Final sequence

To see the ending demo we have to introduce the next key:

MITAIYOENDDEMO



SUPER SPEED

We can drive our vehicle beyond 600 km/h if we go on these steps:

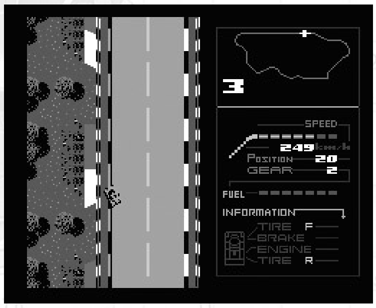
1 Select *Endurance Race*

2 Choose *Original Mode*

3 During the car design we will always select the left pieces, but the transmission which we will never select the AT.

4 During the race we will use the third gear and then the second; then our car will give off white fumes and quickly we must hit the wall delibera-tely, but not turning over the car. If everything was ok our vehicle will be really fast now!

We will look for a straight stretch long enough in order to get this trick easier.



Combinations

With ***Q-BERT, KING KONG 2*** *or* ***GAME MASTER*** in **SLOT2** we can drive through all the availables races.

Tricks Wanted

Collaborate with this magazine and send us your better tricks for MSX games.

The "rarer" the better!

You can send your tricks to the next emails:

kaneda@filnet.es
saebamsx@gmail.com

We're waiting for your help!

STARQUAKE

Prologue

A message has arrived to Earth alerting to the apparition of an unstable planet coming from a black hole which is placed far away in the galaxy.

If the core of this planet is not rebuilt and becomes stable, the whole universe will be destroyed by the great explosion producing the Star Quake.

Blob (BIO-Logically Operating Being) has been selected to this dangerous mission.

The game

In this game we guide *Blob* through the planet with the mission of finding the five necessary pieces to rebuild the planet core and make it stable. These pieces are randomly spreaded around the planet so it will be hard to accomplish this mission.

The planet is made up of five hundred and twelve stages which are grouped in fifteen adjacent zones. Each zone has a teleport that allows to travel to one of the other fourteen zones. It uses a coding system.

Due to the strong gravitational field of the planet Blob can't jump, but he comes with several systems which let to access to difficult zones: Blob has plates against gravity which pushes our character upwards, so we can reach higher zones. Blob has propelling bases which lets us to fly all around.

Planet is infested with dangerous criatures that will attack Blob and will try to decrease his energy. Luckily, over the surface of this place we will find lots of helps to recharge our levels and get access to other zones.

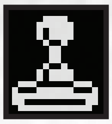
We must collect core fragments and take them to it, which is placed in the centre of the planet, in the KWAKE zone.

Objects

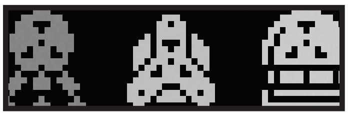
Blob can carry on a maximum of four special objects at the same time, so we have to study very well what items we really need. The ordinary objects are inmediately used by our character and does not count when we take them.

Ordinary objects

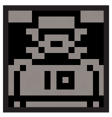
Joysticks: We get an extra life.



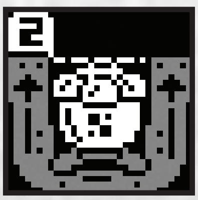
Energy recharging: As its name says it allows to recharge the Blob batteries.



Plates generator: We'll fill the allocated energy to generate against gravity plates.

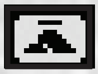


Propelled bases: Our heroe can use these bases to fly, to access to any place. The only inconvenient is that it does not fit inside some small corridors. We can't enter through doors either...

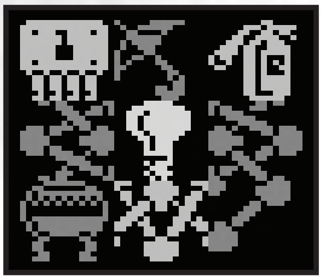


Special objects

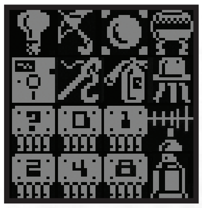
Card: This is the most important object; it is needed to cross the security gates and get access to systems. Get it asap!



Core fragment: We need carry on five objects of this kind till the core to make stable the enormous planet.



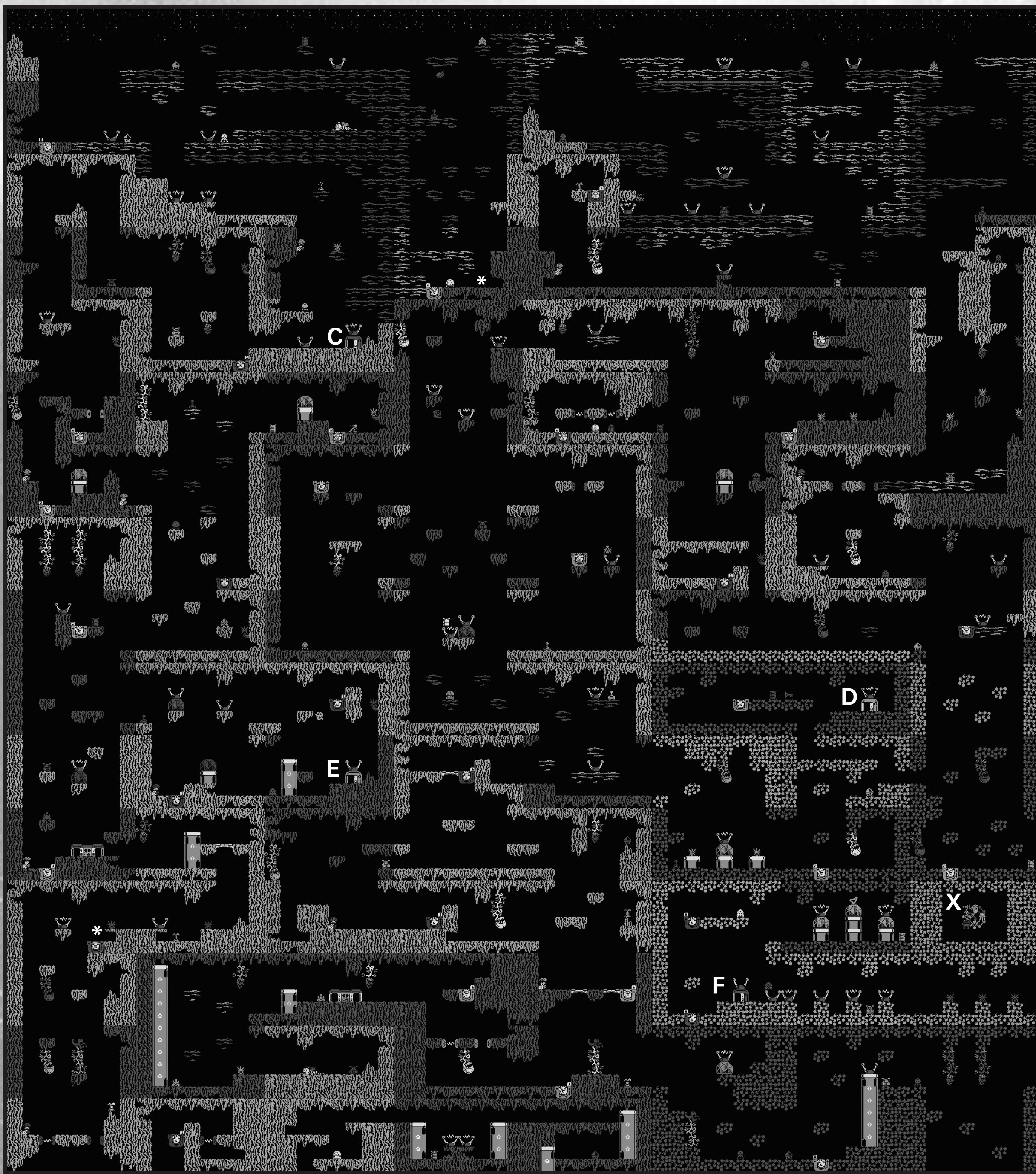
We can visit KWAKE to know the fragments that we have to search. There are different types, for exemple a light bulb or a soda siphon. There are numbered circuits which have an extra function: we can use them to pass through security doors if we don't have the card.



Key: It allows opening some small doors and access to another zones. There are only two accesses which require this kind of object.

Cheop's Pyramid: These pyramids let us to change some objects. We need the access card or the circuit with the indicate number to negotiate.

STARQUAKE

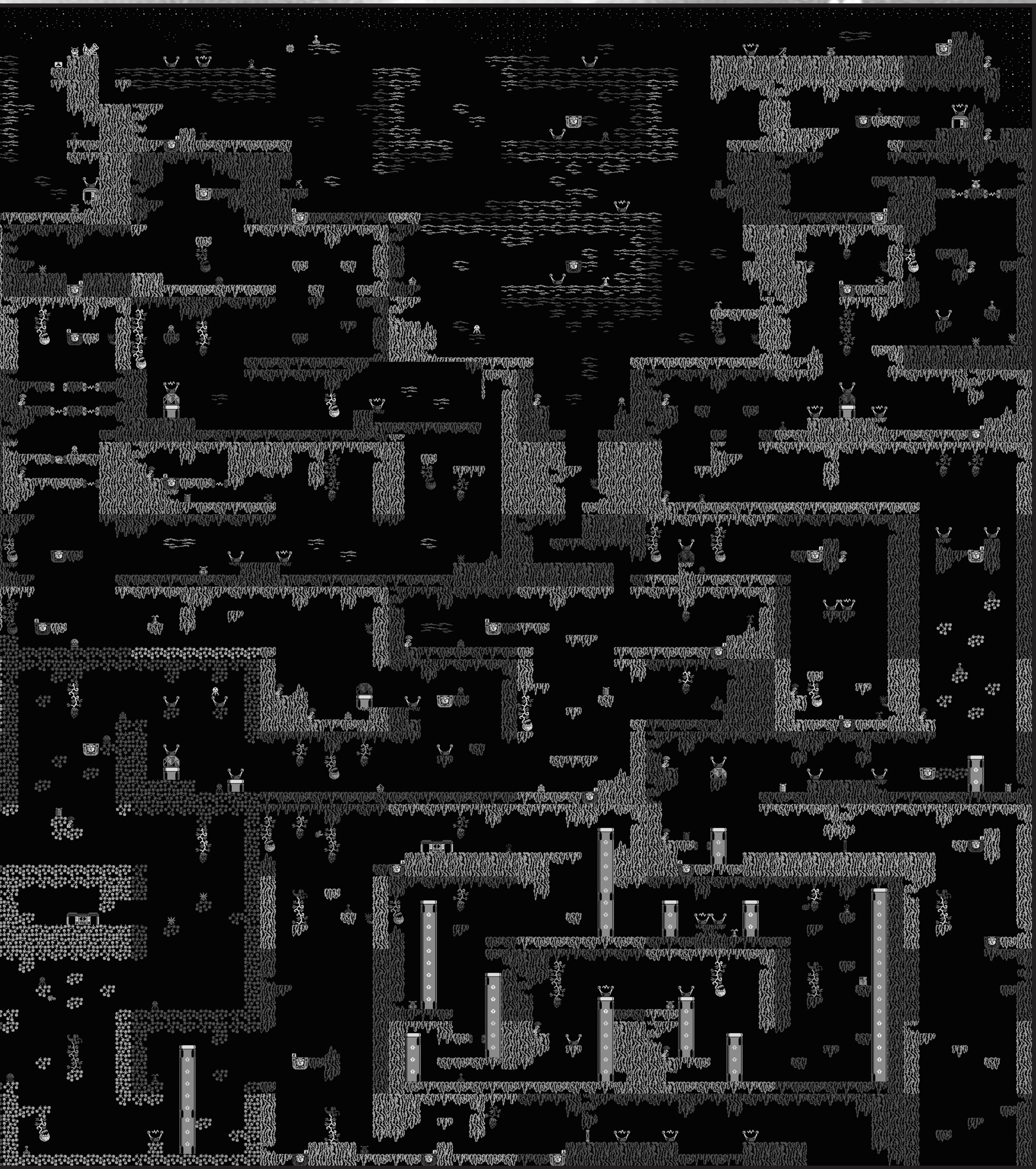


Legend

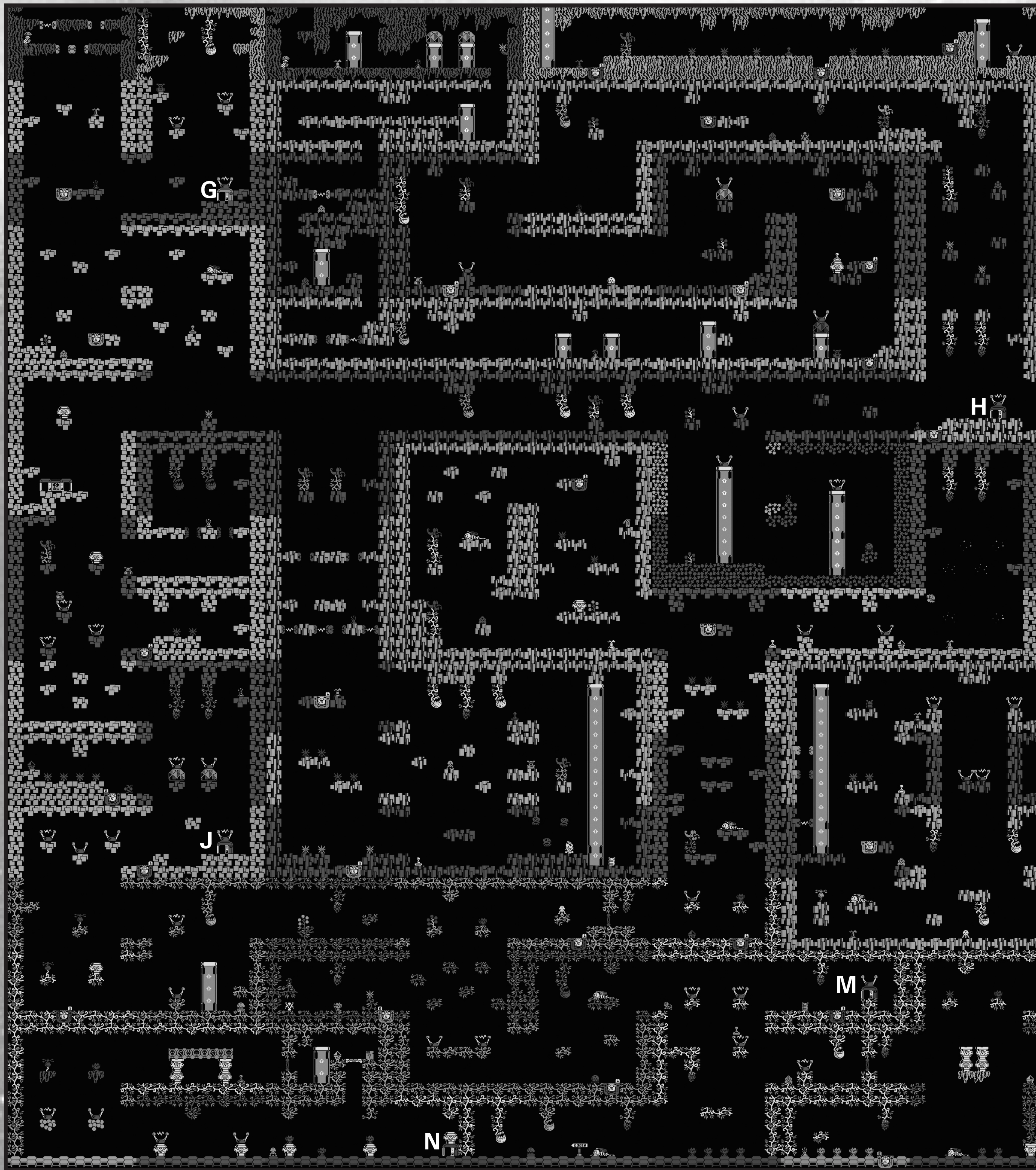
S - Initial position
P - Security gate
* - Secret passage
X - Planet's core

Teleport codes

A - RAZON
B - VORAX
C - TARAQ
D - ANTIO
E - DULAN
F - KWAKE



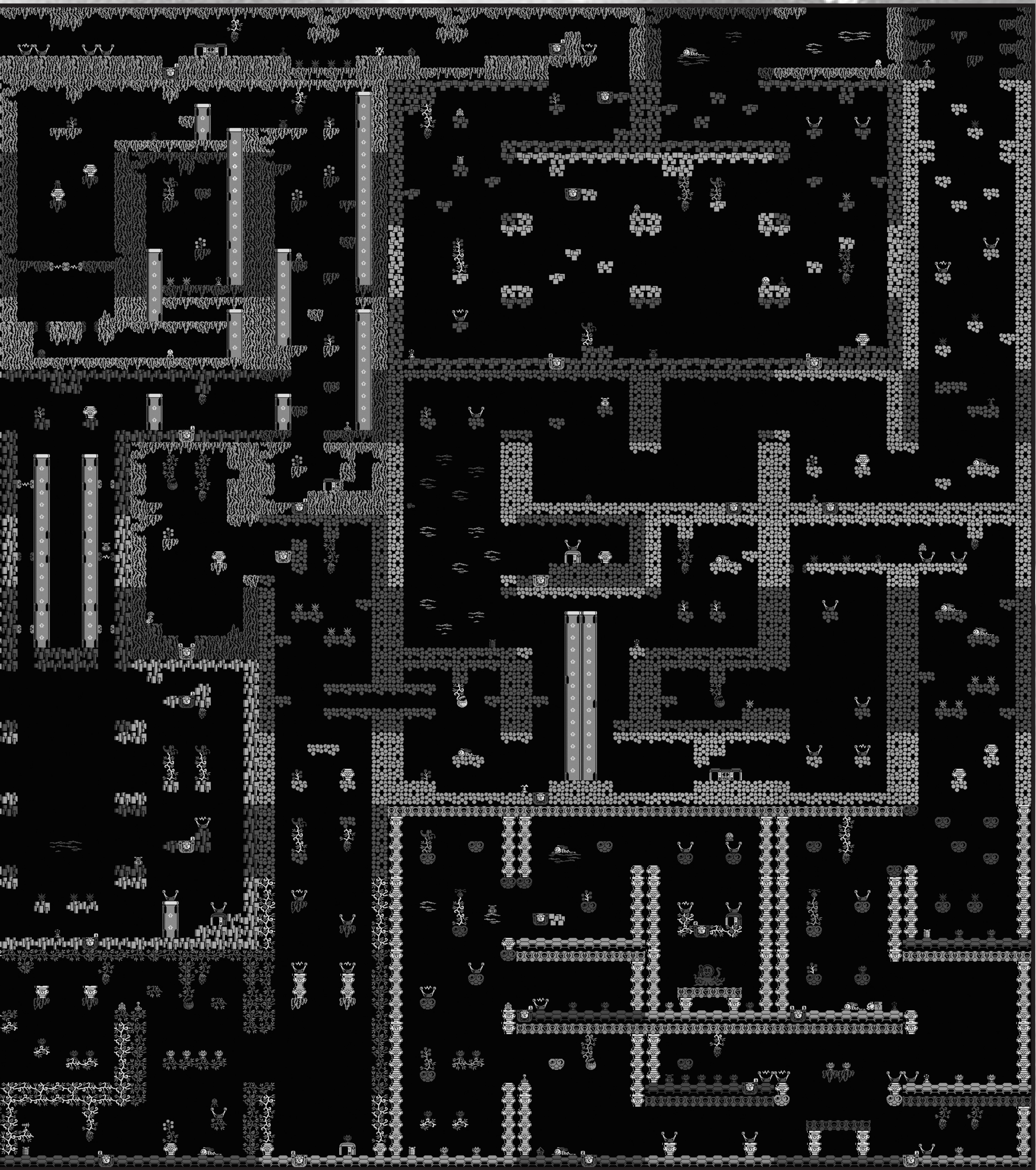

DAVE COLLINS
bubble bus
STEPHEN CROW


G
H
J
M
N

Legend
P - Security Gate
* - Secret passage

Teleport codes
G - ANGOR
H - ERCOT
I - KRANZ
J - UPLAN
K - INDLE
L - OPTIN

Teleport codes
M - SNOOL
N - ZODIA
O - ARGOL



DO IT YOURSELF

-Molds for cartridges-

By Manuel Pazos

We need following materials:

- *Lego pieces, Tente or similar (cardboard if you don’t have anything).*
- *Plasticine*
- *Cutter*
- *Plastic vases*
- *Plastic spoon*
- *Cart case we want to clone*
- *Vaseline*
- *Pencil*
- *Silastic 3481 and his catalyst S-81*
- *Poliuretan bicomponent resine*
- *Plastic recipient with measures for resine*
- *Paper or light cardboard (if missing little funnes ^^!)*

In this tutorial i’m trying to explain how we can make molds to do our own cartridges’ cart cases.



Firstly we will create a kind of box or container. We can do a cardboard box, but it will be more useful (later we’ll see the reason) doing it using Lego pieces, Tente or similar. Height and size box will depend on the cart case you will want to do.

Once the boxis made, a mantle of plasticine must be put at the bottom, thick enough so the piece you want clone can sink till its middle normally (in this case it’s better don’t sink it too much though, as later we’ll see a little line or notch). It is recommended to put in small quantity of vaseline before the plasticine in order to get the pieces not sticked (or the piece sticked to the silicone). Notchs must be done at the plasticine in the corners with a pen or similar. They will be used as anchor and will fasten both mold pieces so they fit perfectly.

Once the box with the piece are ready we have to use the silastic and its respective catalyst.

The quantity has has to be calculated then we don’t exceed too much, as the material is not cheap. We pour the needed silastic quantity in a plastic container and mix it with the catalyst in a 5% proportion (I always refer to the materials that I’ve used, but if you use other ones, you better check their instructions of use). It´s very important to mix well both components, with a plastic material (a spoon would do it). When it is mixed well we can start to pour it inside the box gradually then there is the less air possible inside.

<- In this picture we can see the box with a plasticine bottom. Case pieces are lightly sinked on it and the container has the silicone:

If we have a paintbrush we can give a silicone mantle before pouring it all. Then we avoid the remaining bubles on the pieces’ surface. Once the pieces are covered it is convenient give sweak hits to the sides of the box to try to make disappear the possible bubbles left. Use the needed silicone, not less, or the moldwill be too weak. Pour there till the molds walls will have at least 1cm of thickness.

Now we have to wait 24 hours till the silicone will be dry. We will know it when after touching the surfice our fingers won’t be sticked. ^^!

When it will be dry, we can proceed to dismantle the walls of our box (I advised you to make it with Lego because of this



reason so now it's easier to take the mold out).

Once we romove the box and the plasticine, we have in our hands the fisrt part of our mold.

It's better try to remove all plasticine without moving the piece of its place. If you have remove it, be assured later that

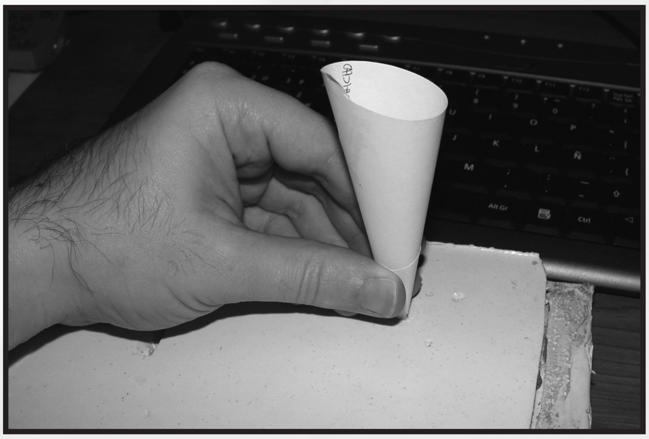


you have put it back to its same position so the mold will be perfect.

Now we're going to build the little box around the mold, on the opposite surface. We have to give vaseline on the silicone surface so the one we will pour later won't stick to this.

We make a new mix of silicone and catalyst again ans we calculate the amount that we will need. Once it is well mixed we will cover the piece. Don't forget to give some weak hits to take out the bubbles.

After 24 hours it will be dry and we will remove the walls of the box. Once the walls have been removed we have to separate each part even if it could seem hard to do.



Next thing to do could have been done before but I did not test it so I will tell you how i do it. We must make a hole to put the poliuretan and another one to let the air leave and the resin come in. I made it with a cutter and a wooden bit.

Now the molds are ready to create so many cases as we desire. ^^v

I don't need too much time to doing the parts since the used poliuteran resin dries up in around ten minutes.

Before preparing the mixing the molds have to be ready to put the resine. We join both parts of the same mold to notice that they fit perfectly. We must try to not move them until they are completely "together".

We have both poliuretan resine componenets. They must be shook before using them.

It has to be poured in a container (with measures is recommended) with the same quantity of both mixes. We have to try to calculate it by guessing the quantity again. In this case we use 10 ml. from one and 10 ml. from the other one to each one of the parts. But in this case, we can't remedy if the quantity is short, because this material gets hard in a few minutes so no time to remedy if we don't have enough mixing. It's important to mix it carefully because our time is limited.

Once mixing is over, we have to strain it through the hole we made in the molds. We can use a funnel to strain the mix better, although it's hardarous find it so small and I used one made with paper, we can throw it after used.

It's important that we made the holes to let the air leave. As we did when pooring the silicone it is good to move a bit the mold and give some small hits to get the air out but carefully then the resine does not out from the hole. Now we have wait 10 minutes until the piece will be dry up.

Once this time has passed, since sure a part of the resine has kept outside, we must check that it is dry the one which stands out. If it is ready we will separate both pieces of the mold.

Sometimes some air bubbles can appear, but if we do it carefully, we will get perfect cases. So now we just have to sand it a bit and cut the spare parts-

It is hard to get a perfect case with it when it is the first one made. The experience will help you where creating the air exit or where pour the poliuretan since it can be poured from



other places or putting the mold in a perpendicular way.

Manuel Pazos

Golf games for MSX

Our system has a fabulous catalogue of golf sport games. Golf games aren't things of the past, we can see new adaptations in actual machines as Mario Golf for Nintendo Gamecube for exemple. I had the idea of making this article for a few years. So you have a little guide that groups all golf games and rescue them from oblivion. We start this comment with games for the first generation of MSX.

The Golf in MSX1

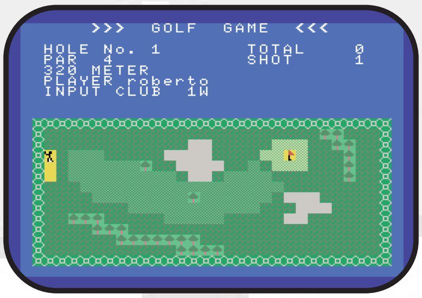
***GOLF GAME**. Ascii Corporation 1983 ROM 16 Kb*

First Ascii's raid in golfs' sport. It's a very simple program where we can see the links in zenithal view. This follow the tipycal order to choose clubset, then placing by the window the icon that indicates shot direction and next we can determinate the power with an indicator we modify arbitrarily.

Positive : The control is very simple and no problems are offered.

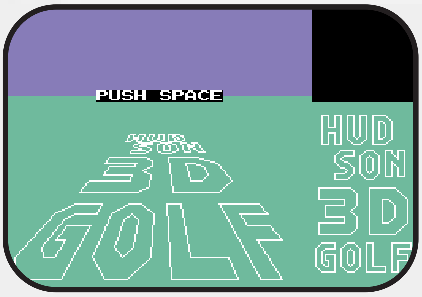
Negative : Graphiscs are poor. It's a primitive program, but it is true that it isn't the worst golf game in our system.

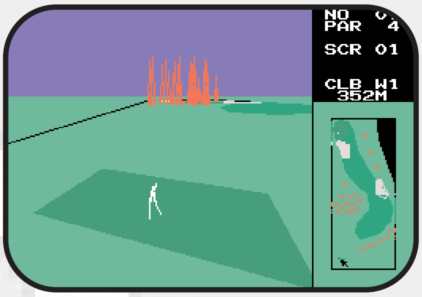




***HUDSON 3D GOLF**. Hudson 1983 ROM 16 Kb*

We've got another primitive game for the standar coded in basic with slowness even creating the scenario. Although it seems unplayable at first sight it has the controls in the keyboard. Clubset change are in keys "A" and "S". We can change the golfer position with keys "Z" and "V" and if we want to adjust more our movement it can be made with keys "X" and "C". We must keep the spacebar pressed when the golfer starts the attempt to hit and prepare the club to hit again. In conclusion, it's a real primitive game that will exasperate us because of its slow construction of the scene everytime we hit a stroke.





***GOLF**. Ascii Corporation 1984 ROM 16 Kb*

We've the possibility to play up to two players. All the country club is seen since it fits in the screen. Under it we have the menu splitted in: direction, wind strenght, clubset, feets position which determinates ball direction, an icon of a golfer determinating impact strenght and next number of the hole, par, hits done and the distance in meters left till the hole.







Positive : Graphics are simple but bright, helped with textures it seems a screen with sophisticated colour. The golfer has a funny animation and after we arrive close to the hole it appears a menu with result of the moment.

Negative : The control is the weak point of this game: Feets system instead of “cross” system, and once we are on the green it's difficult to master the final shots.

This is just a curious game but most of people will forget it soon.

HOLE IN ONE*. Hal Laboratory 1984 ROM 16 Kb*

It was the first game of a legendary saga which transcended our system and we saw a version in recently performed Super Nintendo in 1991. It's a simple game in which we can play up to two players with three levels (average, expert and pro). Screen is splitted in a window on left where we see the typical score and a window on right with a bigger size where we play. It has a zenithal view and just as we hit the ball and it is approaching the hole till we enter green and gaming zone is extended to do last stroke.

Positive : Control is very simple and we can control flight very well. I stand out vertical scroll in hole changes.

Negative : We only have the meters reference at the beginning and till the ball arrives to the green it is not informed anymore.

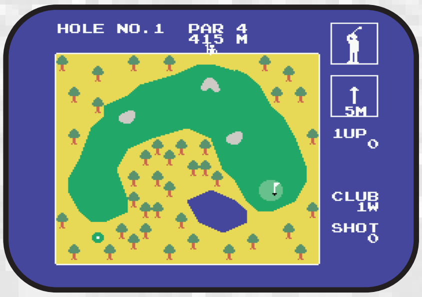


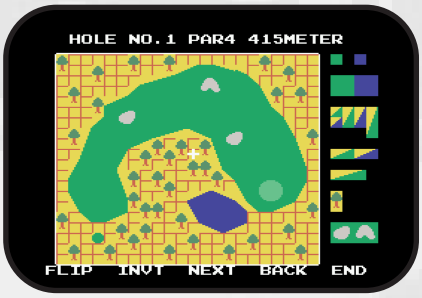


SUPER GOLF*. Comtec 1984 ROM 32 Kb*

We can say we are in presence of a game which surprises pleasingly in his beginning screen, as apart of have possibility of playing two players. We can choose construction mode to create our own hole. Once inside game screen we have a central window where the hole is in zenithal view and in his limits there's the icon of a golfer we can move like a cross for direction's strokes. In higher part is the text with number of hole and par. At right a







simple animation of a golfer stroking, direction and winds' strenght, clubset and shots made.

Positive : As I said before construction of holes and originality in modeplay respect another similar games.

Negative : Graphics are too simple, all is inside in this window and control's pow it's very strange because there isn't energy bar and you keep pushing button till you think you have wished strenght.

KONAMI'S GOLF*. Konami 1985 ROM 16 Kb*

In this game we can choose from beginning player's selection (1 player stroke, 2 player stroke and 2 players match). Once we chose we see how the game scene is. It has a great window that fills more of a half of screen and is where really we playing. In first stroke we are behind a female character which does the shot, but in succesive shots we'll dispose a subjective view till we arrive on green where we pass to a zenithal view and several icons show us wind's direction. In this window appears too distance in meters till hole, kind of stroke (straight, slice or hook) and once we push button appears selection of kind of stick and a power bar. On the right there's a simple menu where is the number of the hole, direction and strenght of the wind, and shots done by the player. An last there's a window on the right in the lower part where we see the draw of the hole in zenithal view and we control the cross of stroke's direction.

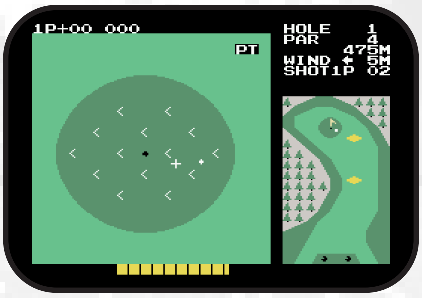
Positive : Subjective view is grateful, we've a environment on perspective so we are introduced irrelevantly in game. Clearness we have in all moment where we stay and the meters left to do the hole is essential.

Negative : Graphics are too simple but so clear. Perhaps ever we wait more of Konami, but we have to understand limits of subjective view which is creating scenario everytime.It miss a modality as tournament or coup.

In short, a clear game, easy to control and amused. Congratulations to Konami, It's pity don't have a new version for Msx2 computers.







***MINI GOLF**. Namco Ltd. 1985 ROM 32 Kb*

How it's possible almighty Namco offers to us this botch programmed in Basic?!!!
If some positive I can mention perhaps is the soft execution of shots but no more. It seems a mockery because don't emanate some of professionality. Ridiculous graphics are creating in slow motion while bottom is colouring. There is no wind either. It's lamentable!







***CASIO WORLD OPEN** Casio 1985 ROM 32 Kb*

We have here a Casio game hard similar Konami's golf. At beginning we can choose between one or two players. And game screen it's a imitation of the previous game. Main difference rest on third person view keeps to the green in Casio game. Character ever appears scaling himself on profundity of field. In the right window is where apperars the zenithal view of hole and once ball arrives on green is produced a zoom in







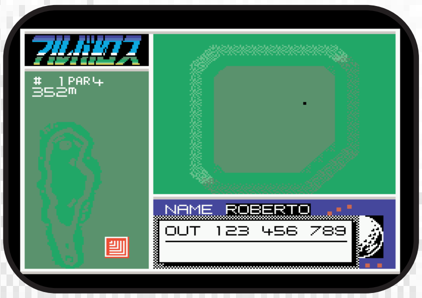
the zone.
Positive : Graphic section is funny and a little more worked like Konami game. I make stan out the scroll on the ball rising inside main window.
Negative : Control of menus and strokking could be better.
We can say this game is inspired in Konami's golf of the year before but don't surpass in some aspect, only in exterior appearance which is not to much till you start playing.

***ALBATROSS** Nihon Telenet 1986. ROM + TAPE 16 Kb*

In this Telenet game the first that monitor show us is a simple menu that begs us if we want read rules, accede to tape or start to play. We put our name and the game starts. We can see a screen splitted in three zones. On left we have an aerial view of the hole we are playing. The distance in meters till the hole is indicated, the par and an icon with direction and strenght of the wind. On right higher zone we' ve the biggest division, it's the gameplaying zone with a increased view of the link. Under it we have control menu where we appreciate the shots done, kind of stick and a big ball where we can adjust the stroke and his power.
Positive : Really not too much. Perhaps the clearness of the splitted screen and control menu.
Negative : Graphics aren't much elaborated and without virtuosism. In control menu appears top distance of every stick, and even once ball is shoten don't appears coursed distance and left till arrives to hole. Scroll and ball's animation are not very good like as precisions' shots.







***HOLE IN ONE PROFESSIONAL** Hal Laboratory 1986 ROM 32 Kb*

We've here a new serial of the mitic Hole in One saga. We can choose between 1 or 2 players, difficult level (average, expert & professional), mode of play (stroke play, match play, tournament and construction) and the links (Queen side or King side). In the game

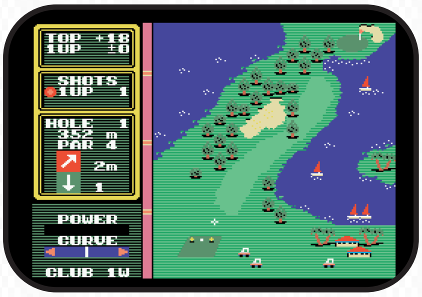
screen we have on left side typical menus where stands out power bar and curve bar. On right side we've the map of hole in aerial view that's the game zone. Everytime we make a hole, next will be showed with a vertical scroll.

Positive : Graphic clearness and details in map are goods, so like easy control of game and cross. If we push F1 we can view a score's board. Construction mode adds more addiction to the game.

Negative : Only pitch is we can see meter information left from first shot onwards and you've put in imagination at theme.

It's a amusing game that counts with 2 links of 18 holes and tournament mode, with a decent graphics and will do to pass to you a good time.







MSX2 GOLF GAMES

WORLD GOLF *Enix 1985 1x2DD*

Enix one of more charismatics enterprises on Rpg games (Dragon Quest, Gandhara) surprises us with a golf game too much amusing. We can choose between tournament mode, training, load state or look best records. In tournament can complete till three players. Game screen is simple but clear. In left side we have the map of hole in aerial view where the game is developed, and in right side we have the great menu with all typical indications. Little graphic window where is the girl golfer stands out as when we move the cross, environment is moving behind her and locate us perfectly on link. A great detail to agree. After choose the stick and aim we have to place the point where we want shot the ball. Immediately after we have to accurate strenght in energy bar.

Positive : It's a pioneer game of Msx2 and answers very well to expectation, disc format, high resolution in screen 7 and graphics very acceptable as viewed in 1985. Easy control and menus are very clear. How much can you beg?

Negative : A gracious detail is in data menu, we can choose only till 1999 year. Sirs of Enix, we are in 2005 and we continue playing with Msx, what a fault of prevision!! ;P Perhaps miss some mode of playing, but finally, it's a great game.







HOLE IN ONE SPECIAL *Hal Laboratory 1987. ROM 1Mb*





Here's last serial of the saga in Msx with new of be a megarom for second generation of our system. Illustration has a more soffisticated look that previous editions. We can choose between 1 or 2 players in different levels of difficulty (average, expert and pro), the kind of game (match, stroke and one to four dayus of tournament) and two links (east and west) of 72 par. At the beginning in the window of the left is showed a notice-board that indicates the distance of the hole and number of par. Menu changes and appears the score, shots done, direction and strenght of wind, energy bar and a ball where we'll hit the curve of shot. In lower side an icon with club and another with the lie (type of surface where is the ball). Game window goes on tradition too and has aerial view, but this time the scene isn't all in only screen as it possesses a soft scroll where screen continues whilst we advance. Green has own zoom in screen too.

Positive : Graphics has bettered remarkably since last version propered to better use of colour and resolution of Msx2. Cross control is more precise and vertical scroll is very correct and smooth. Special mention to sound effects that begins to be achieved like applauses.

Negative : The icon with distance to hole inside dissapears too soon and after that it doesn't appear anymore.

Scenario construction option has disspaeared from last version.
The best game of saga with difference. More soft, better control and overcoat better graphic environment.

***WORLD GOLF 2** Enix 1987. 2x2DD*







This game is a jewel, what a great sequel!! It goes out itself in all aspects. To begin it has a good screen of presentaion in screen 7. Ok, in fact all the game is in screen 7 and enjoys of a very good resolution like Enix has accostumed us. In menu we can choose between tournament mode, training, see the status and register a new player. At starting a new tounament we can choose clubset (will be appearing more whilst we are winning tournaments) and after we can start a new game or continue with other saved early. And next we can choose too the link, if is new game we have no choice and we have to contest Enix Open and win it to access to new links. Game screen has several small windows in the corners where we have all options pefectly detailed. It's all in here, the par, hole's meters, kind of stick and his maximum distance, the rank, kind of shot (opened or closed), wind and gameplay mode.Once choosen kind of stick we aim with the cross and choose the opening of shot. Next appears an energy bar, if we pay attention on left we have a blue stripe that indicates the power of shot and on the right a green stripe where we must hit good to give wished height to the ball. We can view scenario before start playing or see the green.

Positive : Graphic look is excellent, neat and colourist, with good technic in the use of shadows (pay attention in depth of bunkers). Menus are clear and playability is very good. Whilst you are playing the game attracts to you, is very addicted. Till music that appears occasionally is pleasant.

Negative : There are only tournament mode for one player. We miss can compite one match play or stroke play against other player.

***MEMBERSHIP GOLF** Sony/Klon 1989. 2x2DD. FM*



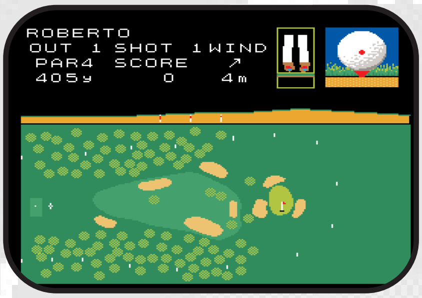


We are just looking for signs to translate this game. What a pity this game is in japanese language because it has a incredible look. We have a menu in kanjis in we must divine to create characters and the visitors. Last option is where we choose mode of play between typical modes and the link between another much. We accept and we have to choose our character and we start playing. After a panoramic views of links appears game screen and what a screen!! The colour is fascinating and the icons are funny. If we push Graph appears a submenu with more options in kanji.

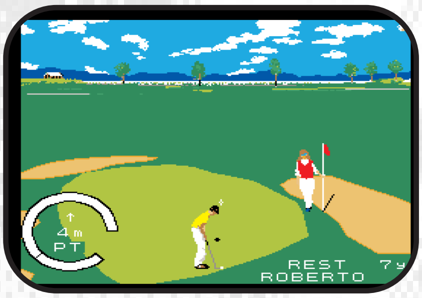
Positive : Graphic section is good and bright.

N*egative* : Language is in this case a negative point. It's a little slow and we can appreciate some brusqueness or precission in time of hit the ball.

***THE GOLF** Pack in Video 1988. 2x2DD FM*







Great quantity of games of second generation of system don't be edited out of Japan and we have to translate them and The Golf is not a exception. Thanks to god, options are in katakana sillabary, so it's easier move inside options. These are Tournament, Stroke play, Match play, Skins match and player selection. Once selected the player we choose stroke play for exemple and appears other menu with handicap, ball's collection, club selection and club set.

At start to play we have a menu where we choose direction and the point to hit the ball. After this appears the game screen in a realistic perspective with a graphic level very acceptable. Control is smooth and it is easy to give the desired power to the ball.
Positive : It has easy control and it has three dimensions graphics which are precious. We have a course disc and a links editor. It feels like we are in front of a more powerful computer than a Msx2. Congratulations to Pack in Video to get best profit of the machine.
Negative : Can you say something bad? Perhaps it's slow creating scenes but it does not disturb too much.

JACK NICKLAUS GOLF *Crossmedia Soft 1990 2x2DD. FM*





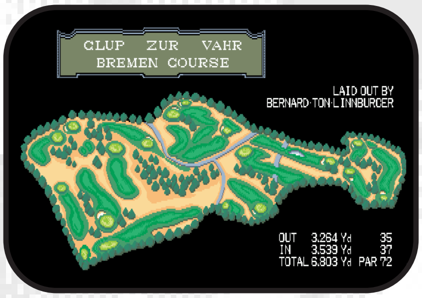


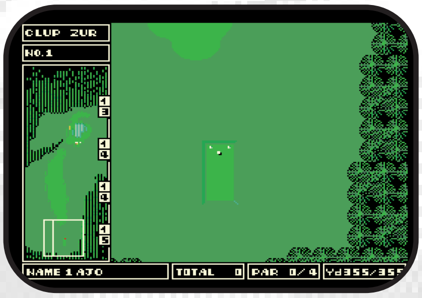
Our system can't be less than others and has too a version of this classic golf game. It's all in japanese language but we can go on options thanks to katakana sillabary. It has a look like Pc games as this is a version of Accolade classic game. We can say it's a game in real perspective. It hasn't a lot of options and control is a little confused, I'm refering to the power bar and seems wind affects to the ball's flight more of we hope. It's difficult control this game.
Positive : Graphic environment is different all viewed on Msx. Perspective is achieved and the graphics although simple accomplish. It isn't a colourist game but we feel an atmospheric sensation.
Negative : In Msx2 is slow creating the screen. When seems you have foresaw where the ball will fall down you have got an unpleasant surprise because the wind is more excessive of normal in other games and the ball is more deflected than you thought firstly.
A curious game, one license like this isn't easy to see in our system but it's difficult take the control.

ALBATROSS 2 MASTERS' HISTORY *Telenet/Reno 1990. 3x2DD FM*

This is a sequel of old Albatross by Telenet. This game was sold under Birdy Soft logo too. It consists of three discs, first of them offers us an intro where it explains the history of the tournament placed during the twenty years, with a graphics that employ a sepia veering to reflect more the historical sensation. Intro finishes with an interesting animation of a golfer shotting the ball. From here onwards appears a menu where we must register our name (X select, Z cancel), choose our club (stick selection), select mode of play (stroke, tournament, match, training and visual match) and see a board with the winners of tournament.
Already in the game if we start by the training we can choose between three links (clup zur vahr, old andrews and cypress corner), carry on caddie and wind's inclusion. There's to stand out the graphic of different links, there's so beautiful and bright in screen 7.
Game screen is splitted in two windows. In the left we have the miniature of the link where we can aim shot's direction. We have the players' name below, the total of holes we have played till the moment, shots we done in relation of par and partial yards and total. In bigger window we have the scenario in bigger scale and we can view it completely with direction keys moving the scroll. Once we push X appears other window over the other with the land's profile, the club, a ball where we looking for the exactly point of shot and the power of it.
Positive : Graphic look is very good in general. The menus are very completed and seems it takes off of antique game concept, is envisaged as a modern concept of game like a console's videogames.
Negative : When we view the link, horizontal scroll is worst than vertical (things of hardware). Music results repetitive but in a golf game neither is indispensable.
An interesting and worthy game, this game deserves that we play sometimes.



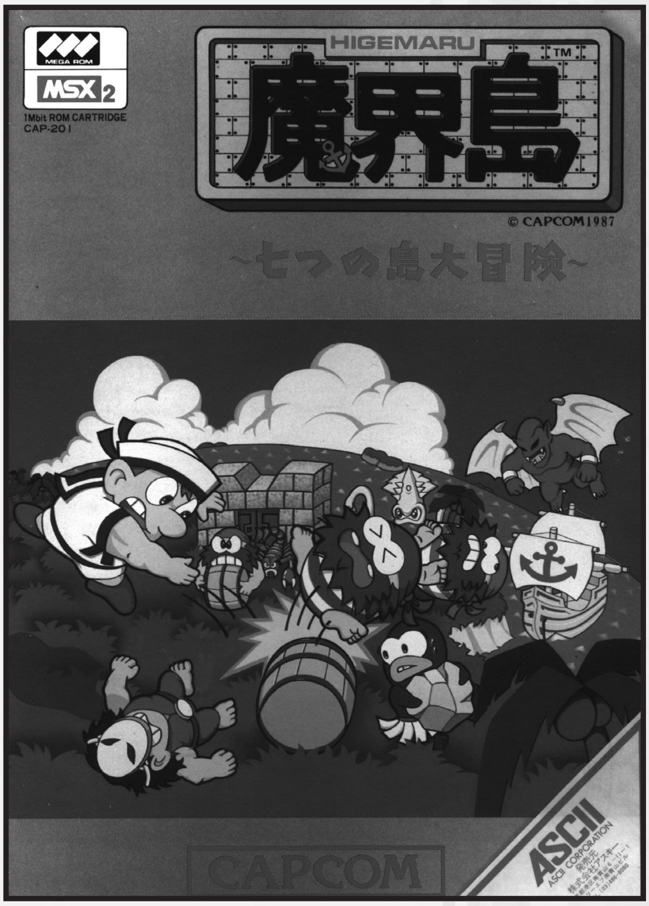




Roberto Álvarez

How to finish **HIGEMARU**

by David Fernández

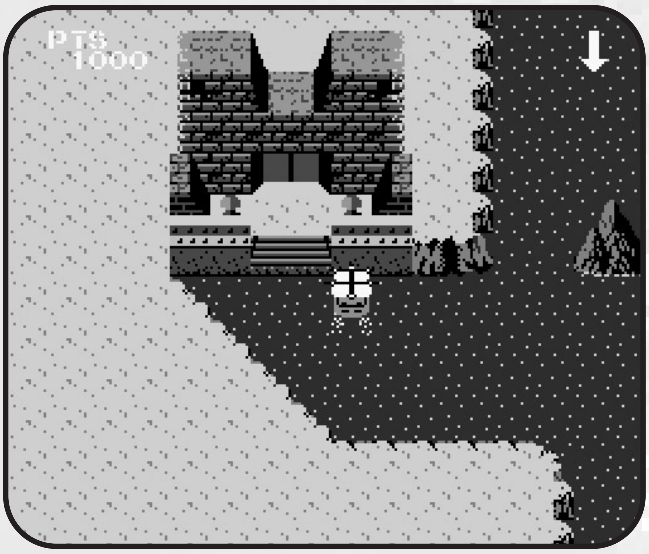


First at all you have to get the key in the first pirate ship. This is the key to enter "Cuck Island". After that, go to the island, beat the sorcerer (Moribito) and talk to the man on the left (close to two candles). Now look for the ship with the key to enter "Curse Island".

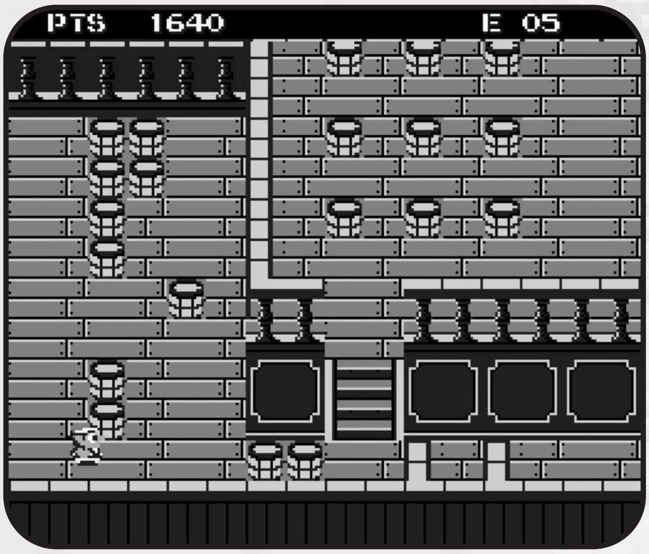
In this island you'll find two entrances trough two caves, one on the left and the other on the right. First enter the left one. When you arrive to a wall with two metallic doors, throw the four rocks that are lying on the floor to the left door to break it. Follow the way and you'll find a pearl with a "C" inside. Come back, now by the right and search a temple with a demoniac idol, kept by sect's leader (Archbishop). Beat him and look for the ship with the key to enter "Memaid Island".

Go there and you'll see a giant squid (Kraken) throwing ink balls or attacking you with the tentacles through the pits, depending on the screen. In one of those he will attack you with the tentacles from below and that's the moment when you'll have to attack him (he has six tentacles, attacking in pairs). Go two screens upwards and find a triangular stone board. Go back where you beat the squid and from there follow these directions: down, left, up, left and up. You'll arrive to a screen with many rocks and a bridge to the water. Under the upper-left rock you'll find a mermaid. Take her to the bridge and drop her on the water. A pearl with an "M" inside will appear. After that, look for the ship with the key to enter "Hebi Island".

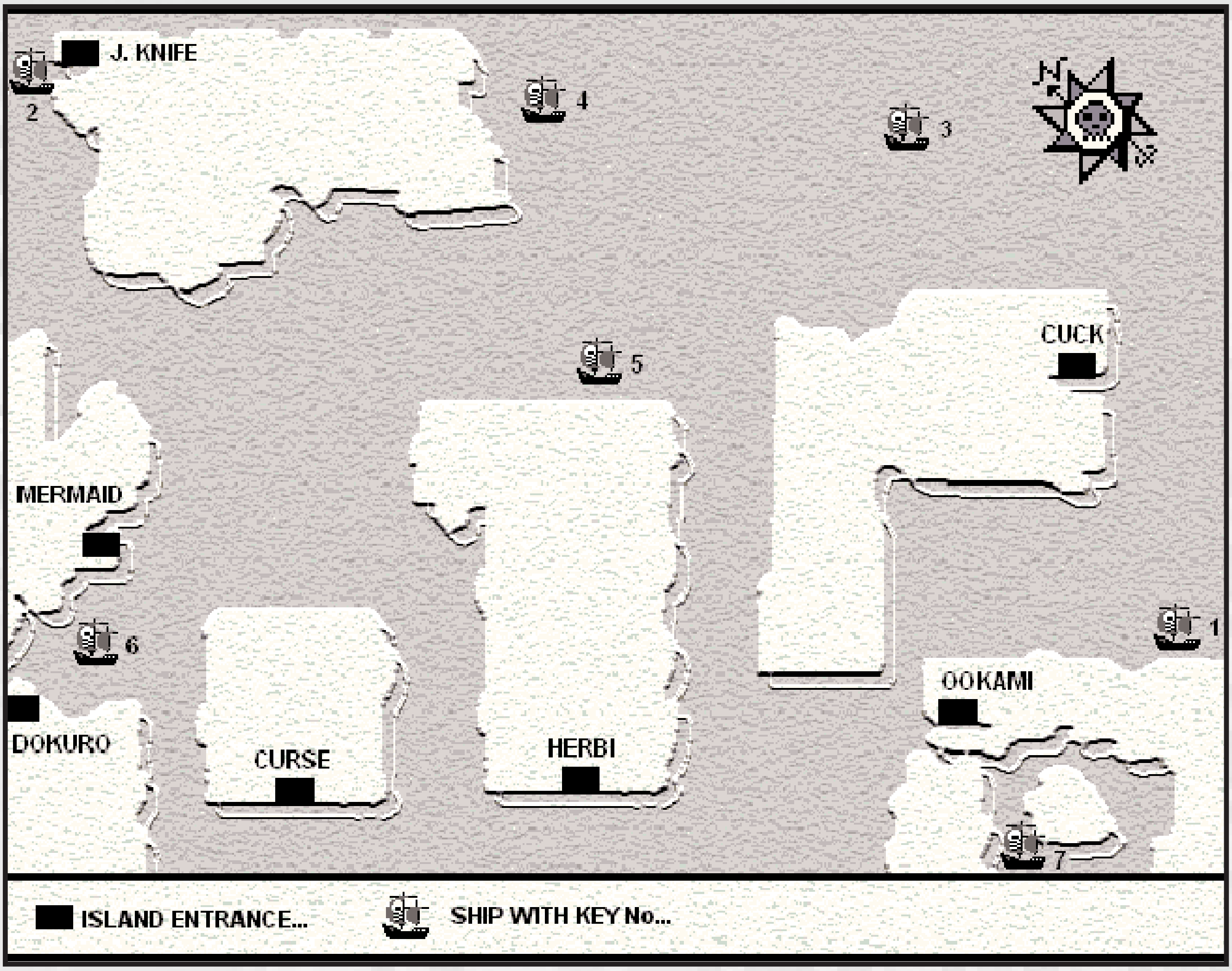
After entering the tower, go left and look for a stairs, under the rocks and you'll find a man with a red lamp. Come back to the beginning, go up the rightmost stairs, search the cyclope (Cyoclops) and beat him. In the upper screen you'll find a circular rock board. Now look for the ship with the key to enter "Dokuro Island".



Navigation view. Arriving to an island.



Inside a ship.



Higemaru's world map.

Once you get the key, head first to "Cuck Island", go to see the man of the candles and they will light up. Continue to "Dokuro Island" and look for the scroll (with which you'll translate inscriptions) and destroy the spirit (Zombie Giant). Take the key to enter "Ookami Island" and wait. A grey ship will appear, which will be a ghost ship. Attack him and get the square rock board.



Second island final boss.

In "Ookami Island" you'll have to destroy the giant gorilla. Going up you'll find a map (with which you'll see your ship's situation). Go down and in the left screen you'll see a cactus. Throw 5 rocks to it to get a pearl with an "O" inside. Two screen right there are two ships. Throw 10 barrels to the one on the right. You'll hear a sound and a bridge will open. Cross it and you'll see a strange construction (with a ball on it) to which you'll have to throw 4 rocks. Everything will shake. Now look for the ship with the key to enter "J Knife".

Look for an ice mountain monster and destroy him. Go down, right, down, right, down. Enter the igloo and follow the way until its end. Now you are in a room with 6 statues and a lot of rocks. There is a hole under one of the rocks. Come in and you'll see a big door with an eye in its centre. Put the thee stone boards on it. Now go to "Ookami island". There was a closed door that now will open if you push it. There you'll face pirate's boss (Bousu) who, after being destroyed, will give you the last object... a tear. Come back to the igloo and the door. Open it and you'll see the last boss. A devil (Devil the Redarymer). After destroying him, put the tear under the eye on the door and it will open. Come in and you'll see the ending.

MR. GHOST SECRETS

Just a bit easier... ;>

It's a difficult game, no doubt. But you can use some in-game features to make the trip easier.

I talk about "SECRET ROOMS".

There are 2 secret rooms per stage. Usually.
First one before middle-boss. Second one between middle-boss and final boss.
It's like this at stages 1, 2, 3, 6 and 7.

Stage 4: both secret rooms before middle-boss.

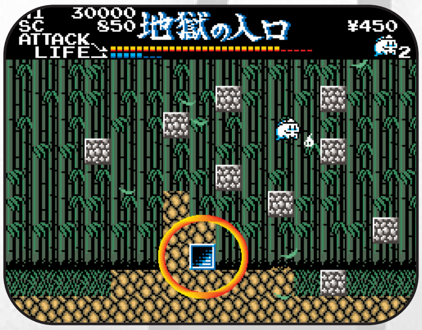
Stage 5: just 1 secret room (why? No idea!).

Well... So why are these rooms so great?
We could call them "storerooms". They're full of coins and items!

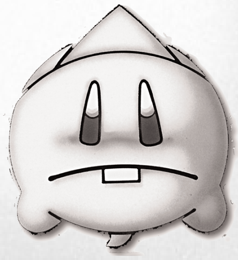
So, when you get into the room, you must...

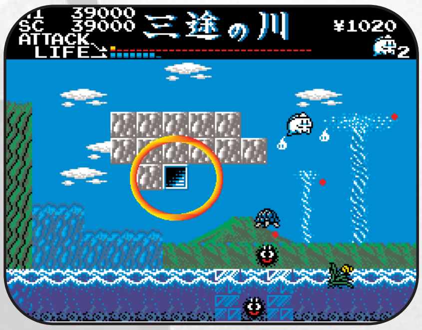
1st./ take silvery coins (they fade so fast...)
2nd./ break as many blocks as possible, in order to find the hidden items.

Don't be afraid of using "back-attack" once and again and again: attack points don't run out in here. In fact, attack

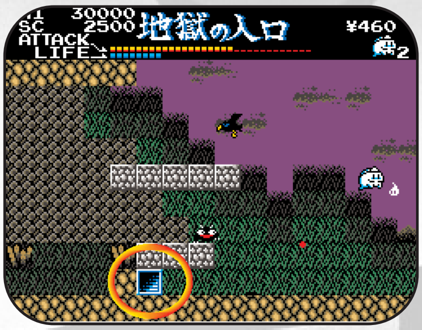


Stage 1 secret room 1





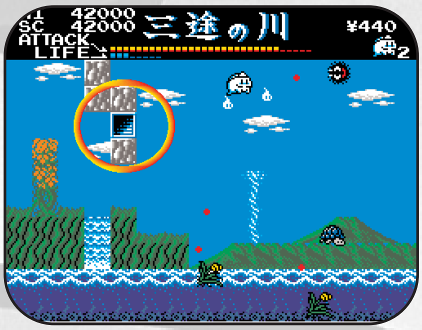
Stage 3 secret room 1



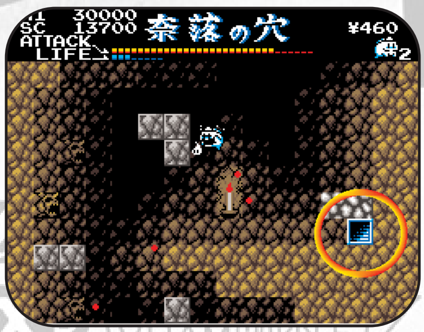
Stage 1 secret room 2



Stage 2 secret room 2

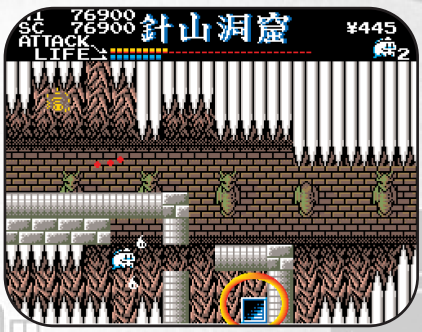


Stage 3 secret room 2



Stage 2 secret room 1





Stage 4 secret room 1

points raise while you're inside the room.

About items...

- 100 coins
- heart (to recover HP)
- clock (to stop enemies for a while)
- attack refill (so useful! You can collect up to 2)
- shield (to avoid 10 hits)

To make a long story short, get in every secret room and get all the money and items you can.
That will assure you a longer life and it'll increase your odds to enjoy all stages and even see the nice ending.
:D

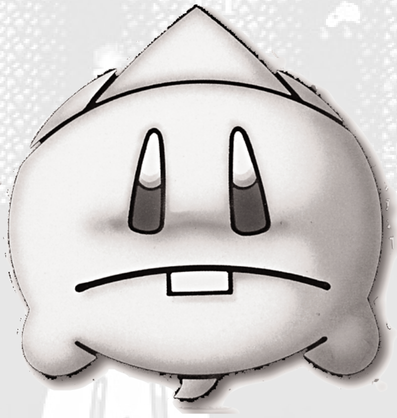
One final advice.
About bosses: try to have many attack points whenever you meet a middle or final boss. It can be dangerous (or mortal) to face a boss without attack points.

It won't hurt you to carry an "attack refill item".... or 2.

Good luck and...

DARE TO PLAY!

Sutchan.

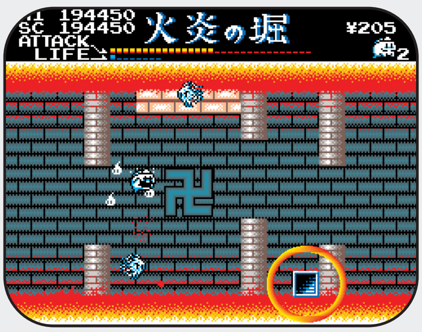




Stage 4 secret room 2

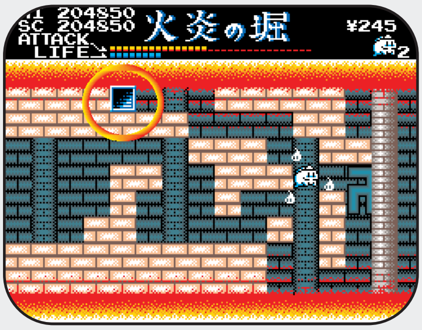


Stage 5 secret room 1

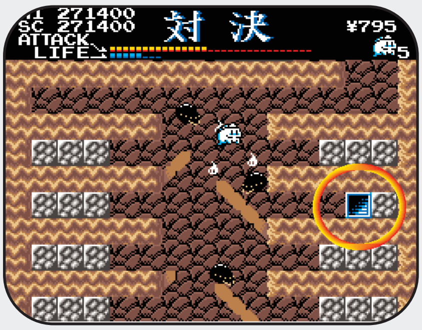


Stage 6 secret room 1

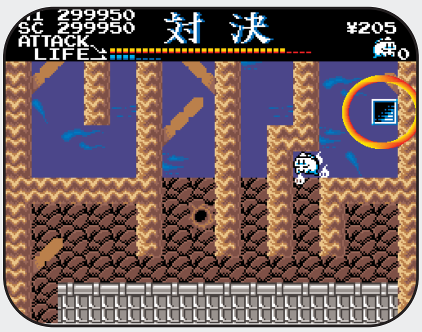




Stage 6 secret room 2



Stage 7 secret room 1



Stage 7 secret room 2

MMC READER

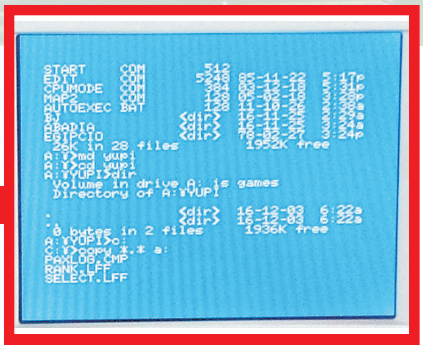
FOR MSX

One of the main problems of MSX is the disk drives life. The MMC-Reader is a device which can replace 360KB or 720KB disk drives perfectly.
It can also be used as IDE interface whose partitions are up to 23MB or as a Flash cart to load ROM files.
It comes with a set of applications stored in Flash memory to manage it and the MMC card. It lets to plug/unplug the MMC cards on the fly and their size is up to 256MB.



MMC Reader by Leonardo Padial is based on MMC Reader by Yeongman Seo.

1


2


3


1 MMC Reader. It works as external FDD, like an IDE Hard Disk or as a Flashrom (512KB). Supports MMC from 16MB to 256MB. You can make partitions with a maximum of 9 pages per partition and sizes of: 360KB, 720KB, 1.44MB, 2.88MB, 5.76MB, 11.5MB, 23.0MB

2 MMC Reader Support Software (by Yeongman Seo). The Flash-ROM Disk contains the DOS2 system files (v2.31), Flash downloader, MMC disk manager and MMC system installer.

3 Princess Maker running on the MMC Reader. As it works as a real disk drive, you can boot games that don't work from current disk image loaders.

More info about MMC Reader at: http://lpadial.aamsx.org